DOCUMENT RESUME

ED 331 624 PS 019 492

AUTHOR	Klerman, Lorraine V.
TITLE	Alive and Well? A Research and Policy Review of Health Programs for Poor Young Children.
INSTITUTION	Columbia Univ., New York, N.Y. School of Public Health.
SPONS AGENCY	Carnegie Corp. of New York, N.Y.; Ford Foundation, New York, N.Y.
REPORT NO	ISBN-0-926582-02-X
PUB DATE	91
NOTE	137p.
AVAILABLE FROM	National Center for Children in Poverty, Columbia University, 154 Haven Avenue, New York, NY 10032 ($8.95, plus $3.00 postage and handling. Discount on orders of 10 or more copies.).
PUB TYPE	Information Analyses (070)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Child Health; Comparative Analysis; Death; Diseases; *Economic Factors; *Family Characteristics; Family Planning; Health Programs; *Health Services; Incidence; Individual Needs; Literature Reviews; *Low Income Groups; Poverty; Pregnancy; Program Effectiveness; *Program Improvement; *Public Policy; Social History
IDENTIFIERS	Special Needs Children

ABSTRACT

Focusing on families with children under the age of 6 years whose incomes fall below the federal poverty level, this monograph provides the first comprehensive overview and assessment of the literature of the past decade concerning policies and programs addressing the health needs of children in poverty. Chapter One introduces themes in the complex relationship between economic disadvantage and health among young children. Chapter Two outlines the history of health services in the United States for children, giving particular attention to program effectiveness. Chapters Three, Four, Five, and Six review the ways in which poor children's health is worse than that of nonpoor children, summarize the health problems of specific populations of poor children, explore how poverty can affect health status, and describe the personal health care patterns of poor families. Chapter Seven demonstrates that many programs work, whether they are community-oriented or personal health services, such as maternity or infant/child care. Chapter Eight looks to the future, comparing and contrasting policy aproaches to improving children's health, and offering programmatic recommendations. Supplementing the text are a glossary of 48 terms and programs, 379 references, 18 figures, 4 tables and the names, addresses, and titles of staff of the National Center for Children in Poverty. (RH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED331624

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☒ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

ALIVE AND WELL?

A RESEARCH AND POLICY REVIEW OF HEALTH PROGRAMS FOR POOR YOUNG CHILDREN

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY
Beth Atkins

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

BEST COPY AVAILABLE

PS 019492

NATIONAL CENTER FOR CHILDREN IN POVERTY

COLUMBIA UNIVERSITY
SCHOOL OF PUBLIC HEALTH

The National Center for Children in Poverty (NCCP) was established in 1989 at the School of Public Health, Columbia University. Its goals are to strengthen programs and policies for children and their families who live in poverty in the United States. The Center seeks to achieve these goals through interdisciplinary analysis and dissemination of information about public and private initiatives in the areas of early childhood care and education, maternal and child health, and the integration and coordination of services for young children and their families.

The Center gratefully acknowledges the generosity of the Ford Foundation and the Carnegie Corporation of New York for the Center's core support, which has made the preparation of this publication possible. This monograph does not necessarily reflect the foundations' views.

BEST COPY AVAILABLE

Alive and Well?

A Research and Policy Review of Health Programs for Poor Young Children

Lorraine V. Klerman

Yale University

with the assistance of Maura B. Parker

National Center for Children in Poverty
Columbia University School of Public Health

154 Haven Avenue
New York, NY 10032

1991

BEST COPY AVAILABLE

Lorraine V. Klerman, Dr. P.H., is Professor of Public Health, Department of Epidemiology and Public Health, Yale University School of Medicine. She has written numerous book chapters and scientific articles in the field of maternal and child health, specifically concerning adolescent pregnancy, school absence, and prenatal care. She has served on many national panels and committees, among them the Public Health Service's Expert Panel on the Content of Prenatal Care and the Institute of Medicine's Committee to Study Outreach for Prenatal Care. She has been a member of several federal research committees and editorial boards. For the past seven years she has taught at Yale, where she has received two departmental distinguished teaching awards. Prior to this she was a Professor of Public Health at Brandeis University's Florence Heller Graduate School for Advanced Studies in Social Welfare. She is active in New Haven and Connecticut health organizations and statewide planning for health care. She holds a B.A. from Cornell University and an M.P.H. and Dr. P.H. from the Harvard University School of Public Health.

Maura B. Parker, M.P.H., was a research assistant and student of public health at Yale University when she assisted in the preparation of this monograph. She is now attending medical school at Loyola University. She holds a B.A. from Vassar College.

Copies of this publication are available from the National Center for Children in Poverty, Columbia University, 154 Haven Avenue, New York, NY 10032; 212-927-8793; FAX: 212-927-9162. Checks must be made out to "The Trustees of Columbia University" for $11.95 ($8.95 plus $3.00 postage and handling).

Copyright © 1991 by Lorraine V. Klerman.
All rights reserved.

Library of Congress Cataloging-in-Publication Data:

Klerman, Lorraine V.
Alive and well? : a research and policy review of health programs for poor young children/
Lorraine V. Klerman with the assistance of Maura B. Parker.
128 pages.

Includes bibliographical references and index.

1. Child health services—United States. 2. Poor children—Medical care—United States. 3. Poor children—Diseases—United States. 4. Child health services—Government policy—United States.
I. Parker, Maura B. II. Title.
RJ102.K54 1990
362.1'9892'00973—dc20 90-20002CIP

ISBN 0-926582-02-X

Foreword

Children in the United States should not be living in poverty today, but they are. The poverty rate for children under six is 23 percent—the highest of any age group in our nation. This is unacceptable. According to data from the U.S. Bureau of Census, 31.5 million people were classified as poor in 1989, as determined by a family's pretax income. Strikingly, of this number, 5.1 million were children under the age of six.

This report on the health problems of poor young children is unique. It is the first comprehensive overview and assessment of the literature that has appeared over the past decade concerning policies and programs that address the health needs of this vulnerable population.

The author recognizes the need to start viewing children and their families in poverty in a different way. We spend over 11 percent of our gross national product on health, and while we clearly do care about our children, we must increase this concern and become more efficient and resourceful in our problem-solving. In the past we have been reactive. We must become more proactive. We must define and develop comprehensive approaches that aid young children and their families during the early years of family formation. The emphasis must highlight prevention, access to quality services and timely and appropriate utilization, and a continuity of health care that contributes to family stability and better outcomes for children's lives.

The sponsor and author of this study clearly recommend a nonremedial approach to child health problems. The monograph has been compiled by combining scientific knowledge and social sensitivity. The text describes the extent to which the health of poor children is worse than that of nonpoor children, and it examines the effect of poverty and its environment on health status and how poor families use health services. It also reviews available public programs and the new policies that are needed. The information contributes insights and direction for federal and state policymakers, health care providers, and public policy advocates.

A debt of gratitude is owed to the author of this work and the National Center for Children in Poverty and its funders for making the publication possible. The volume should remind us of pressing issues and the millions of innocent infants and children whose lives and safety are affected daily by the lack of sufficient attention to their condition. It should call us to commit ourselves to decades of effort to address their needs and to prepare them for productive futures.

January 1991

Henry W. Foster, Jr., M.D.
Dean, School of Medicine
Professor, Department of Obstetrics and Gynecology
Meharry Medical College
Nashville, Tennessee

NCCP Council of Advisors

Barbara B. Blum, Chair

Urie Bronfenbrenner

Lawton Chiles

Clinton E. Deveaux

Lily Wong Fillmore

Henry W. Foster

Robert E. Fulton

Jewelle Taylor Gibbs

Oscar Harkavy

Stephen B. Heintz

Lorraine V. Klerman

Philip R. Lee

Ponchitta Pierce

Helen Rodriguez-Trias

Allan Rosenfield

Lisbeth Bamberger Schorr

Ellen Sulzberger Straus

John B. Waller

Harold Wesley Watts

Edward Zigler

NCCP Panel on Child Health and Maternity Care

Drew Altman

Sarah Brown

Sara DiPersio

Roselyn Payne Epps

Stanley Graven

Stanley Greenspan

Fernando Guerra

Samuel Kessel

George A. Lamb

Wendy Lazarus

Barbara Lowe

Joan Maxwell

C. Arden Miller

Paul W. Newacheck

Mortimer G. Rosen

Jeannie I. Rosoff

Mark J. Schlesinger

Barbara H. Starfield

Deborah Klein Walker

Council Representatives to the Panel:

Helen Rodriguez-Trias

Allan Rosenfield

Note: This panel helped to initiate the Center's planning work in the field of maternal and child health. While the group made contributions to the early stages of this study, the final monograph does not necessarily reflect the members' views or opinions.

Contents

Preface viii

Executive Summary ix

Chapter One: Poverty and Health 1

The Number of Children in Poverty 2
Health Problems and Their Causes 3
Methodological Issues 4
  Health Status Indicators
  Economic Indicators
  Limitations of the Material 5
Health Services for Poor Families
In Support of Expanded Health Services
  The Outcome Argument 6
  The Equity Argument

Chapter Two: The History of Health Services for Children in Poverty 7

Prior to 1920 7
The 1920s 8
The 1930s
The 1940s and 1950s 10
The 1960s
The 1970s 13
The 1980s 16

Chapter Three: The Health Problems of Children in Poverty 19

Mortality 19
  Infant Mortality
  Overall Early Childhood Mortality 21
  Deaths from Congenital Anomalies 22
  Sudden Infant Death Syndrome
  Deaths from Unintentional Injuries
  Deaths from Child Abuse 23
  Deaths from AIDS 24
  Deaths from Other Conditions
Incidence and Prevalence of Health Conditions
  Low Birthweight and the Associated Problems of Preterm Delivery and Intrauterine Growth Retardation (IUGR) 26
  Problems Associated with Maternal Substance Abuse 28
  HIV Infection and AIDS 31
  Asthma
  Dental Health 32
  Other Medical Problems
  Nutritional Problems 33

BEST COPY AVAILABLE

- *Lead Poisoning* 35
- *Mental and Emotional Problems* 37
- *Unintentional Injuries* 38
- *Child Abuse and Neglect*
- *Limitation of Activity Due to Chronic Conditions* 39
- *Hospitalization* 40
- *Reported Health Status*

Chapter Four: Children with Special Problems That Affect Their Health **41**

- *Homeless Children* 41
- *Children in Migrant Families* 43
- *Children in Foster Care* 45
- *Children in Rural (Nonmetropolitan) Areas* 46
- *Children Living in Concentrated Poverty in Inner-city Areas* 48
- *Native American Children* 49
- *Other Special Groups* 50

Chapter Five: The Impact of Poverty on Health **51**

- Sociodemographic Factors Associated with Poverty 51
  - *Education* 52
  - *Marital Status*
  - *Single-parent Households*
  - *Teenage Motherhood*
- Societal Forces
- Inability to Purchase Goods and Services Essential for Health
  - *Housing* 53
  - *Food*
  - *Transportation*
  - *Drugs, Medical Equipment, and Safety Devices*
- Time Constraints
- Stress and Depression
- Inability to Secure Appropriate Personal Health Services
  - *Financial Barriers* 54
  - *Problems in Provider Availability* 56
- Inappropriate Health Service Packages 57
- Unhealthy Life-styles and Limited Practice of Health-promoting Activities 58
- Motivation

Chapter Six: The Personal Health Care Patterns of Families in Poverty **59**

- Family Planning Services 59
  - *Standards and Objectives for Family Planning Services*
  - *Unplanned Pregnancies and Births*
  - *Contraceptive Use* 60
  - *Family Planning Visits*
  - *Source of Family Planning Care*
  - *Problems with Family Planning Provider Availability*
- Pregnancy-related Services
  - *Measurement and Indexes of Prenatal Care*
  - *Standards and Objectives of Prenatal Care* 61
  - *Prenatal Care Utilization*
  - *Source of Prenatal Care* 63
  - *Prenatal Care Provider Availability*
  - *Screening and Counseling* 64
  - *Legal Abortion*
- Health Services for All Children 65
  - *Child Health Standards and Objectives*
  - *Visits to Physicians*
  - *Source of Medical Care* 66

Cost-sharing 67
Immunization 68
Services for Children with Special Health Care Needs
Unhealthy Life-styles and Limited Practice of Health-promoting Activities 69
Injury and Poisoning Prevention 70
Visits to Dentists
Comparisons with the Nonpoor 72

Chapter Seven: Programs That Have Improved the Health of Children in Poverty **73**

Public Health and Community Health Programs 73
Injury Prevention
Lead-poisoning Prevention 75
Nutritional Supplementation
Immunization 76
Newborn Screening 77
Fluoridation
Personal Health Services
Family Planning 78
Prenatal Care 79
Legal Abortion 83
Regionalization of Perinatal Care 84
The Relative Importance of Programs Before Birth and in the Neonatal Period
Primary Health Care During the First Five Years of Life 85
Programs for Children with Special Health Care Needs 89
Managed Care 90
Financing Issues 91
Effectiveness of Programs 92

Chapter Eight: Policy Strategies and Program Approaches for Improving the Health of Poor Young Children **93**

Policy Strategies 93
Economic and Educational Approaches
Environmental Modifications and Personal Health Services
Legally Enforceable Measures and Education
Entitlements and Appropriations-limited Programs
Universal and Means-tested Programs 94
Financing Strategies and Provision of Direct Services 95
Basing Programs in the Health, Welfare, or Education System
Formula and Project Grants 96
Administering Programs at the Federal, State, and Local Levels 97
Addressing the Needs of Mothers and Children—or the Health Needs of All
Program Approaches
Alleviate Poverty
Modify the Environment
Make Personal Health Services More Available and More Appropriate 99
Expand Insurance Coverage 100
Increase Health Provider Availability
Expand Proven Programs 101
Reorganize Existing Services 102
Change Unfriendly Institutional Practices 104
Modify the Content and Delivery of Care
Concluding Thoughts 105

Glossary **107**

References **111**

Figures and Tables **120**

Preface

This monograph, prepared for the National Center for Children in Poverty, is addressed primarily to policymakers at the federal and state levels. Its intent is to make them aware of the extent of health problems among children in poverty, the causes of these problems, and possible ways to address them.

There are several things which this paper is *not*. It is not a how-to-do-it manual. It does not include information about how an effective program can be developed at the local level, or suggest solutions to problems of program implementation at the state and federal level. Such references will be available in other documents from the National Center for Children in Poverty. Nor is this document the report of original research; rather, it is a synthesis of research conducted by others. Nor has this paper attempted to present the facts on all children or even on all poor children. The focus is on poor children under the age of six, with occasional reports on older children or on nonpoor children when these were the only data available. The reproduction-related problems of poor women have also been reviewed because of their relevance to infant health.

Finally, this is not an advocacy document. It is very difficult to remain dispassionate about the problems of poor children, especially when one is aware of their suffering and of the lack of support for those who are trying so hard to assist them. Nevertheless, an attempt has been made to present the facts in a relatively objective manner and to draw unbiased conclusions from them. I hope, however, that this document will be used for advocacy.

I wish to thank the many individuals who contributed to the preparation of this paper. First and foremost, Judith E. Jones, Director of the National Center for Children in Poverty, whose vision made it possible. Oscar Harkavy of the Ford Foundation provided both moral and financial support. Karen Bell of the Center staff also assisted in the development of the paper's framework. Members of the Center's Panel on Child Health and Maternity Care were extremely helpful in reviewing the original outline and then reading and critiquing the first draft. The Center's Council of Advisors also contributed many useful ideas. A group of reviewers, including the late John Butler, Vince Hutchins, C. Arden Miller, Sara Rosenbaum, and Barbara Starfield made additional, valuable comments. I have tried to incorporate many of the suggestions of these experts. Virginia G. Cartoof made important contributions to the section on programs for pregnant adolescents. The secretarial staff at Yale worked tirelessly through many drafts, and particular thanks must be given to Marie Young, Carol Cesare, and Donna Carroll.

Finally, I especially wish to acknowledge my research assistant and student, Maura B. Parker. Her persistence in tracking down material, her insightful analysis of a difficult data set, and her eagerness to learn made the preparation of this paper a more pleasant task, as well as contributing substantially to its quality.

February 1991

Lorraine V. Klerman, Dr. P.H.
Professor of Public Health
Department of Epidemiology and Public Health
Yale University School of Medicine
New Haven, Connecticut

Executive Summary

America is very health-conscious. More than 11 percent of the gross national product is spent on health. Yet a large segment of America's children suffer from health problems related to poverty. One out of five children under six live in poverty, and their health status is worse than that of nonpoor children.

Many experts believe that the health status of poor children could be addressed most effectively by improving their economic condition. Policymakers, however, seem more willing to try to remedy the problem through health measures, particularly the provision of medical care. This monograph focuses on the role of health services in improving the health of poor families. It examines the health problems of infants and young children living in poverty and the services being provided to overcome these problems.

The Health Problems of Children in Poverty

Children in poverty experience more of many types of health problems than do children in families with more adequate incomes. A particular problem's incidence, prevalence, or severity may be higher among poor children. Rates of infant mortality (under age one) and overall childhood mortality are higher among poor children, and certain causes of death are higher: sudden infant death syndrome (SIDS), unintended injuries, child abuse, and infectious diseases, including AIDS.

Rates of morbidity are also higher. Conditions that the poor suffer disproportionately include low birthweight, HIV infection, asthma, dental decay, measles, nutritional problems, lead poisoning, learning disabilities, unintentional injuries, and child abuse and neglect. Poor infants and children have higher rates of hospitalization, and their health status as reported by their parents is lower than that of the nonpoor.

For some poor children, unstable or dangerous physical environments compound the difficulties created by their economic circumstances. These include children without permanent homes because low-cost housing is unavailable, children whose parents are migrants, and children who are in foster care. Native American children and children who live in rural areas or central-city urban areas also experience special health problems.

The Impact of Poverty on Health

The reasons for higher rates of health problems among poor infants and children are complex and difficult to analyze. A family's low income, relative to its size, is associated with several demographic and psychological factors that may lead to poor health—independent of the receipt of personal health services. These include less than a high school education, birth outside of marriage, single-parent household, teenage motherhood, and feelings of stress and depression. Poverty also makes it difficult to purchase some of the commodities conducive to good health. These include adequate housing, nutritious food, transportation, drugs, medical equipment, and safety devices. In addition, poor families frequently have little time available for health-promoting activities.

The availability of health services also plays a major role in determining the health status of poor children. Poor families face a number of obstacles in obtaining appropriate health care. Financial problems make it difficult for them to pay for care, and Medicaid and other programs designed to defray health costs are not accessible to all in need. Lack of providers is another barrier. The care received by the poor is more likely to be of lower quality than that offered to the nonpoor, and the content of the care provided is often inadequate to the problems experienced.

BEST COPY AVAILABLE

For economic, educational, and other reasons, poor families are less likely to have healthy life-styles or to engage in health-promoting behaviors. Finally, poor families may seem unmotivated to seek personal health services when the problem is actually lack of information, fear, or different priorities regarding the use of time and money. When financial barriers are removed, the care-seeking behavior of many of the poor closely resembles that of the nonpoor.

The Personal Health Care Patterns of Families in Poverty

Even though many of the health problems experienced by poor children are the direct or indirect consequences of poverty and related factors, health-related services can play an important role in preventing and ameliorating these problems. Poor families have different patterns of health service utilization than do nonpoor families, but these differences may be largely a function of financial constraints.

Poor families participate less in activities that reduce injuries and poisonings. Poor women are more likely to have unwanted or mistimed births, and they are less likely to use contraceptives. Poor pregnant women are less likely to begin prenatal care in the first trimester and more likely to receive no care at all.

The number of physician visits per year is lower for poor children than nonpoor children, and the source of medical care also differs, with nonpoor children less likely to be seen in a physician's office and more likely to be seen in an emergency room, a clinic, or a hospital outpatient department. Children of color are less likely to be fully immunized than white children.

Programs That Have Improved the Health of Children in Poverty

Two general types of programs have had favorable impacts on the health of poor children: public health or community health programs and personal health services.

Among community health programs, injury prevention initiatives have definitely reduced mortality and trauma. Reductions in the speed limit, use of car restraints, and vehicle design improvements have lessened motor vehicle fatalities. Smoke detectors and fire-retardant clothing have led to fewer fire-related injuries and deaths, and childproof caps have limited poisonings. Window barriers have decreased falls. The introduction of lead-free gasolines and the removal of lead from housing has helped to prevent lead poisoning. Federal nutrition programs have improved the nutritional status of pregnant women and young children, and mandated immunization and newborn screening programs have reduced death and disability rates.

In the field of personal health services, family planning programs have reduced the rate of unwanted and mistimed pregnancies. Programs providing easily accessible prenatal care of high quality have contributed to reduced levels of low birthweight and infant mortality. The regionalization of perinatal care has had a major positive impact on neonatal mortality and probably on infant and childhood morbidity as well.

Programs that use both financing and service delivery mechanisms have influenced child health. In the former category, the 1965 passage of Medicaid increased the utilization of personal health services by the poor. Early evaluations of the federally funded Maternity and Infant Care and Children and Youth Projects suggested that they improved pregnancy outcomes and child health. Community and migrant health centers have also been evaluated favorably.

The Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program is still not reaching a large proportion of those eligible for it, but in areas where EPSDT has been implemented successfully, positive results have been demonstrated. The health component of Head Start has achieved important benefits. Evaluations of social support programs, including home visiting, indicate that they have significant potential for improving infant and child health.

Policy Strategies for Improving the Health of Poor Young Children

A review of program successes and failures suggests that some policy strategies for improving child health are more effective than others. Public health interventions that do not require the active participation of children or of their parents are often more effective than those that do. Compare, for example, the success of water fluoridation with that of dental care. Laws, such as those concerning immunization and newborn screening, have proven to be effective methods of encouraging healthy behaviors.

With regard to health care financing, true entitlements requiring that all who meet eligibility standards be served, regardless of the size of the appropriation, meet more children's needs than programs limited by the size of an appropriation. Programs targeted at the poor, usually means-tested, are more likely to be reduced in scope under financial pressures than are universal programs. Even so, evidence suggests that entitlement programs, such as Medicaid and EPDST, should be better implemented.

Programs that employ financing mechanisms, such as Medicaid, and programs that provide services directly, such as community health centers, are both essential to serving all young children. Financing mechanisms appear to bring many people into care, but private providers are not available in many areas, and primary care must be made available and accessible wherever poor families live. When states and localities do not serve poor families in need, the power of the federal government may be essential to guarantee care.

Increasingly, the health system will need to work closely with welfare and education agencies who have responsibility for some aspects of child health. State welfare departments usually administer Medicaid and EPSDT, and they are also responsible for the homeless and for the health care of foster children and abused and neglected children. The education system under Public Law 94-142 is responsible for children with a wide variety of handicaps, and in most states this system is also responsible under Public Law 99-457 for developmentally delayed and other high-risk preschool children.

Program Approaches for Improving the Health of Poor Young Children

The major program recommendation of this report is that steps be taken immediately to improve the life circumstances of poor children. This can be accomplished either through the direct provision of essential services, including housing, food, clothing, child care, health care, and transportation, or through welfare or other payments high enough to allow the purchase of such necessities.

In the health field, several approaches are essential:

Modify the Environment. Legislation and regulation, coupled with education and strict enforcement, can lead to further reductions in child injuries and illnesses. For example, aggressive actions are needed to prevent lead poisoning and to reduce the drug dealing that supports illegal drug usage.

Make Personal Health Services More Available and More Appropriate. Personal health services should be available to all who need them, should be of high quality, and should include the components necessary to improve the poor family's health status. Among the essential services are:

- Family planning
- Prenatal care that encompasses nutritional supplementation, education, social support, and substance abuse treatment for pregnant women
- Perinatal regionalization
- Newborn screening
- Immunization
- Primary health services for all children
- Specialized health care for children with special needs

Expand Insurance Coverage. Financial barriers to care should be reduced through a program of universal coverage for personal health services. If this is unacceptable, a combination of an expanded Medicaid program and mandated employer-financed health insurance should be initiated. Rates of provider reimbursement should be high enough to attract private providers and to enable public facilities to provide quality care.

Increase Health Provider Availability. Since it is unlikely that almost any level of reimbursement will draw private providers into certain underserved areas, the federal government should maintain a project grant system to fund comprehensive facilities in these areas and to expand the National Health Service Corps to help staff them.

Expand Proven Programs. Initiatives that have been evaluated and that show the capacity to improve child health status should be expanded. Two quasi-entitlement programs should be converted into entitlements: the Special Supplemental Food Program for Women, Infants (WIC), and Children and Head Start. Aggressive implementation of EPDST might also lead to major health gains. Special programs should be targeted to high-risk children, including migrants, Native Americans, those in foster care, the homeless, and children in families residing in remote rural and inner-city areas.

Reorganize Existing Programs. Facilities that provide partial services, such as well-child clinics, should be phased out in favor of full primary care programs. Consideration should be given to integrating the health department and community health center systems, using comprehensive care and community involvement models.

Change Unfriendly Institutional Practices. Some communities appear to believe that additional programs are the only solutions to their maternal and child health problems. Often, however, positive results can be achieved by modifying bureaucracies, however entrenched, and exploring the strengths and weaknesses of programs, followed by procedural improvements and more "user friendly" practices.

Modify the Content and Delivery of Care. Often the content of care provided in the public and private systems does not respond to the needs of poor families. Even when the care is appropriate, there is not enough time to educate these families about their needs. Systems should be designed to attract the poor and provide the components of care that will benefit young children.

Concluding Thoughts

Something must be done about the health of young children living in poverty. Simple justice cries out for them to have the same start in life, in terms of health, that nonpoor children have. They have not chosen to be born into poor families—and they should not suffer for the problems of their parents.

Children must be wanted not only by their parents, but also by society—and children growing up in urban slums or rural squalor cannot feel wanted. Legislators have assisted other populations. They have lifted most of the elderly out of poverty (while leaving many young families in dire circumstances), and they have made renal dialysis (but not prenatal care) available to all. This society needs interventions at all ages and throughout many systems to improve the life options of parents and their children. Children should not be living in poverty in the United States today.

This society needs interventions at all ages and throughout many systems to improve the life options of parents and their children.

Chapter One: Poverty and Health

The United States spent more than 11 percent of its gross national product on health in 1988.[1] Even so, many American children suffer from health problems, and these children are disproportionately poor or near-poor.

The relationship between economic disadvantage and health among young children is complex, but some issues are clear:

- The health status of children in economically disadvantaged families is worse than the health status of children in families who have more financial resources.
- The higher incidence of health problems among poor children is due to the interaction of many factors, including insufficient and inadequate access to "personal" health services—defined as services provided by physicians or other clinicians.
- Quality health services can prevent or reduce the seriousness of many of the health problems that poor children experience. These services include health promotion; health protection; and preventive, therapeutic, and rehabilitative care.
- This country addresses the health problems of its children through both public and private programs. Many of these are effective, but much remains to be done to ensure the health of all young children.
- Additional efforts to improve the health of all children, but particularly the health of poor children, are essential because children are important social investments and the efforts reflect a traditional American belief in equity, or "simple justice."

Chapter One of this volume introduces these themes, and Chapter Two outlines the history of U.S. health services for children in light of their effectiveness. Chapters Three, Four, Five, and Six review the ways in which poor children's health is worse than that of nonpoor children, summarize the health problems of specific populations of poor children, explore how poverty can affect health status, and describe the personal health care patterns of poor families. Chapter Seven demonstrates that many programs work—whether they are community-oriented or personal health services, such as maternity or infant/child care. Chapter Eight looks to the future. It compares and contrasts policy approaches to improving children's health, and it offers programmatic recommendations.

The monograph's focus is on families with children under the age of six whose incomes fall below the federal poverty level. According to 1990 guidelines, a family of two (for example, a woman and her child) with an income below $8,420 would be living in poverty, as would a family of three (two parents and a child, or a mother and two children) with an income below $10,560.

Although the text concentrates on children and families living in poverty, the status of the near-poor—families with incomes just above the federal poverty line—is also described because many of them face as many obstacles as poor families in purchasing adequate food and shelter, and the near-poor are frequently not eligible for publicly subsidized programs, such as Medicaid, and are unable to buy private health insurance. They may find it as difficult to obtain health services as those families living below the poverty line, or even more difficult. Young children living near poverty are often indistinguishable from children living in poverty.

The Number of Children in Poverty

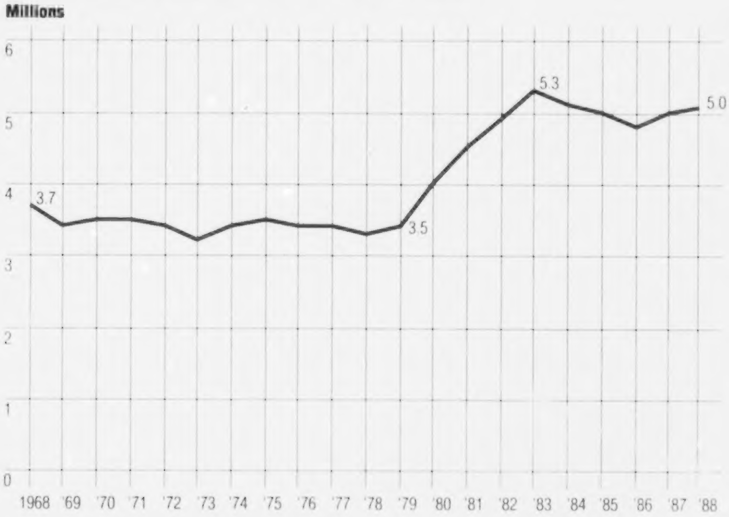
If the number of poor families in the United States with infants and young children were relatively small, the issue of their children's health status would still be important but perhaps of lesser national significance. Unfortunately, poverty among families with young children is extensive. The 1980s witnessed a particularly striking increase in the number and proportion of young children living in poverty. In both 1987 and 1988 the U.S. poverty rate for children under six hovered around 23 percent—nearly one child in four. In 1988 it was estimated that over 5 million children were living in poverty.[2] (See Figure 1.)

Poverty is a particular problem for children under six. The 23 percent poverty rate for children under six in both 1987 and 1988 was higher than that for any other age group in the United States—double the rate for adults aged 18–64 and nearly double the rate for the elderly.[3] (See Figure 2.)

The rise in poverty among young children in the 1980s has been attributed to an increase in the number of single-mother households, a decline in the purchasing power of minimum-wage workers; and the declining value of federal income assistance to low-income families. The economic growth of the 1980s generally did not affect the incomes of low-income families, particularly young families.[4]

About 2.1 million, or 42 percent, of the 5 million poor children under six in 1987 were white. About 1.6 million, or 32 percent, were black; 1 million, or 21 percent, were Hispanic; and 250,000, or 5 percent, were from other racial or ethnic minorities, predominantly Asian and Native American.[5]

Figure 1: Number of poor children under six, 1968–1988



Source: National Center for Children in Poverty. (1990). *Five million children: A statistical profile of our poorest young citizens*, p. 17. New York, NY. Based on tabulations from the 1968–1989 March Supplements to the Current Population Survey, Population Division, U.S. Bureau of the Census.

The 1980s witnessed a striking increase in the number and proportion of children under six living in poverty—nearly one child in four.

Health Problems and Their Causes

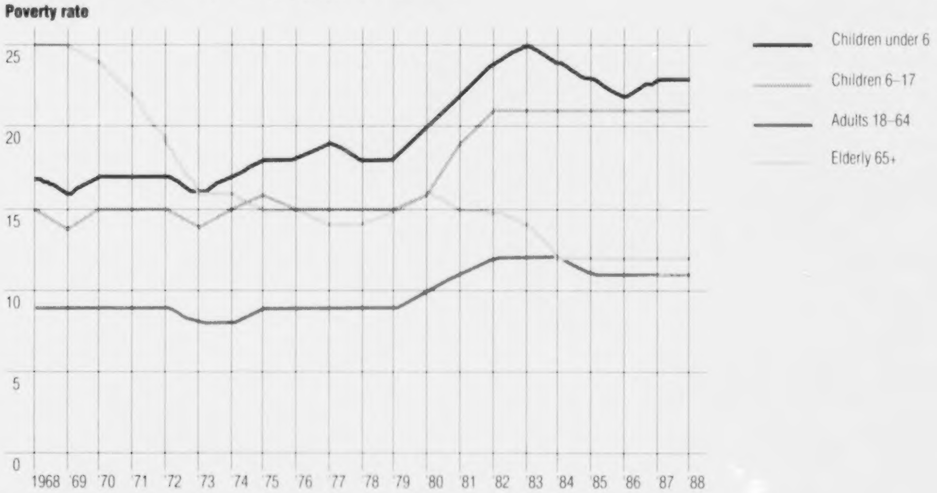
The health status of children in poverty is worse than that of nonpoor children. Poor children are more likely than nonpoor children to be born too soon or too small; to die in the first year of life or during early childhood; to experience acute illnesses, injuries, lead poisoning, or child abuse or neglect; and to suffer from nutrition-related problems, chronic illnesses, and handicapping conditions.

The reasons for the higher levels of health problems among poor infants and children are complex and difficult to analyze. Certainly a large part of the problem is economic. Poor families cannot purchase the goods and services they need to maintain good health, such as safe and adequate housing and nutritious food, and they live in areas where they are exposed to environmental pollutants or are at high risk of injury. In addition, for economic, educational, and other reasons, poor families are less likely than their nonpoor counterparts to have healthy life-styles or to engage in health-promoting activities. Economic status interacts with health problems, and this interaction results in poor children's being more likely than nonpoor children to suffer long-term consequences of health problems.

Poverty is also associated with social circumstances that influence health. These may include limited parental education or extramarital births, single parenthood, adolescent parenthood, and, for minority groups, racial or ethnic discrimination. These economic and social burdens can engender feelings of despair and powerlessness that hinder healthy behavior.

The availability and quality of personal health services play a major role in determining the

Figure 2: Trends in poverty rates by age group, 1968–1988



Sources: National Center for Children in Poverty. (1990). *Five million children: A statistical profile of our poorest young citizens*, p. 18. New York, NY. Also, U.S. Bureau of the Census. (1989). *Poverty in the United States: 1987* (Current Population Reports, Series P-60, No. 163). Washington, DC.

health status of poor children. Poor families have greater difficulty than nonpoor families in obtaining appropriate personal health services. Economic, cultural, and health system factors limit poor families' access to these services, and the care may be of lower quality. Furthermore, since poor children often have health and social problems that differ in both type and magnitude from those the nonpoor experience, the content of care is often inadequate to the problems they have.

Methodological Issues

Proving that poverty leads to poor health among young children is difficult for several reasons. The number of indicators of health status at young ages is relatively small, and researchers often study these indicators in relation to noneconomic factors. Also, since many factors other than direct economic deprivation, such as genetic endowment, physical environment, demographic variables, and medical care, affect health status—and must interact with economic status—it is almost impossible to isolate the specific contributions of economic factors.

Health Status Indicators. Mortality, particularly infant mortality, is the most reliable and valid health status indicator. It does not involve measurement problems, and it is reported on death certificates. Unfortunately, death certificates contain no information about economic status. Mortality statistics capture only the extreme of a broad continuum of problems that begins with global measures of well-being and minor symptoms and proceeds through minor and major illnesses and injuries, limitations of activity, and disability.

Obtaining data on the incidence and prevalence of child health problems is difficult. The National Center for Health Statistics (NCHS) household surveys, and particularly the Child Health Supplements, are major sources of information on health status other than mortality. The Centers for Disease Control (CDC) undertakes special studies, summarizes information on notifiable conditions, and conducts surveillance on some conditions, including AIDS, congenital malformations, maternal mortality, pediatric nutrition, Reye's syndrome, and rubella and congenital rubella.

Many professional groups and special commissions have urged the government to intensify health data collection activities, particularly in regard to children. In the absence of more refined measures collected at frequent intervals, it is almost impossible to determine how increases or decreases in poverty and other social conditions, or expansions or reductions in public programs, affect children's health.[6]

Economic Indicators. While other research has considered the documentable demographic factors affecting health status that often stand as proxies for economic status, such as race, marital status, and education, this study attempts to examine the association between health status and economic variables per se.

Some of the data sources used in this review did not provide information about poverty status as federally defined. When only income information or welfare status was available, this served as the basis for analysis. If neither poverty status, income information, nor welfare status was available, proxies were used and were noted. These proxies include the socioeconomic status of a residential area (usually census tract), the lack of private health insurance coverage, and crowding. Medicaid status sometimes appears as an indicator of low income, but since coverage varies by state,

Poor children have disproportionately high rates of health problems because of their disadvantaged status.

Medicaid is not a sensitive indicator for national analysis. Occasionally demographic indicators had to be used. These included large household size, having less than a high school education, teenage motherhood, unmarried parenthood, and single-parent household.*

Unless stated, these analyses did not use minority status as a proxy for poverty, although other reviews have taken this approach. Since not all minority families are poor, and many nonminority families are, minority status was not considered an appropriate substitute measure. (For an excellent discussion of the relationship between minority status and socioeconomic position and both factors' relationship to health, see the Haan and Kaplan chapter in the 1985 Report of the Secretary's Task Force on Black and Minority Health.[7])

Limitations of the Material. This analysis examines—with a few exceptions—studies using U.S. data collected since 1980. This restriction is important because health problems change over time, and because earlier studies did not use the statistical techniques now available for controlling confounding variables. Since this review focuses on children under six, it does not discuss health conditions that become apparent when children are older. For example, many dental and, to a lesser extent, psychological and emotional problems may emerge in the preschool years, but their epidemiology is usually studied more thoroughly after age six.

Health Services for Poor Families

Since the latter part of the 19th century, private philanthropists and various levels of government have assumed responsibility for improving poor children's health through health promotion, health protection, and personal health services. Their efforts have helped to safeguard the milk supply, reduce the amount of lead in gasoline, provide care for pregnant women, immunize infants and young children, supplement diets, educate mothers, and treat sick and injured infants and children. The various initiatives have required different mechanisms, such as legislation and regulation, health education, financing of services, and direct provision of care.

Many of these programs have led to major improvements in children's health. Infant mortality has declined during the last 50 years, as has the childhood incidence of preventable diseases, injuries, hospitalization, malnutrition, and lead poisoning. The difference between poor and nonpoor health service utilization has lessened as well. Discrepancies remain, however, between the health of the poor and the nonpoor, and many other industrialized nations appear to have healthier children than the United States.

In Support of Expanded Health Services

All children need health services. Poor children need them more critically because of their disproportionately high rates of health problems and their disadvantaged status.

While there can be no excuse for allowing infants and children to suffer unnecessarily, two additional arguments support the provision of health services to poor children:

---

* The terms "poor families" and "poor children" appear in the text rather than the more cumbersome but usually more accurate phrases "families in poverty" or "children in poverty." "Poor families" and "poor children" refer, generally, to families and to children in those families whose incomes fall below the federal poverty line. Since families living slightly above that line often experience similar problems, they are sometimes included.

- Health services will improve the health of poor children now and in the future and will have an impact on other aspects of child and adult life.

- Regardless of whether health services can be documented to improve health status, services customarily sought by middle-income families should be available to those with low or no incomes.

The Outcome Argument. If poor children do not receive high quality health services, their health will be worse than that of nonpoor children who do receive quality services, and poor health has implications for both the present and the future. Poor health is an immediate drain on a family. The family must find the money to obtain ambulatory or hospital-based services, and if they have neither income nor savings to pay for services, nor private insurance to cover them, then the cost of a child's health care falls on society. Moreover, if an employed family member must stay home to care for a child, visit a hospital, or take a child to a health care facility, the family's income may be diminished.

Conditions not treated promptly may worsen and become chronic, not only increasing medical care expenses but also potentially interfering with education and the child's eventual ability to earn an income. The increasing attention paid to child health issues by representatives of corporate America indicates that business leaders understand the relationship between improved infant and child health and a productive work force in the future.[8]

The Equity Argument. Simple justice affords another argument for providing services to poor children. The President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research reflected this concern in 1983:

> Society has an ethical obligation to ensure equitable access to health care for all. This obligation rests on the special importance of health care: its role in relieving suffering, preventing premature death, restoring functioning, increasing opportunity, providing information about an individual's condition, and giving evidence of mutual empathy and compassion. Furthermore, although life-style and the environment can affect health status, differences in the need for health care are for the most part undeserved and not within an individual's control.[9]

Effective services available to more affluent families should not be difficult or impossible for less affluent families to obtain.

Child health conditions not treated promptly may worsen and become chronic, not only increasing medical care expenses but also interfering with later school success.

Chapter Two: The History of Health Services for Children in Poverty

A review of the history of public and private efforts to provide health services to poor families is essential to understanding the current system and the mechanisms by which services have been and could be made available.

This review should make two points clear. First, policymakers have used a range of strategies in their attempts to improve child health, including the following:

- Public health, community-based measures and personal health services
- Universal and means-tested eligibility programs
- Financing mechanisms and direct service provision
- Entitlement and appropriations-limited programs
- Formula and project grants
- Federal, state, and local programs
- Services based in health, welfare, and education departments
- Programs designed exclusively to meet maternal and child health needs and programs directed to the entire population

Second, major initiatives to improve child health tend to be closely grouped in time, followed by long periods of relative inaction. This observation parallels that of Schlesinger, who noted that 30-year cycles of high public purpose were followed by periods of private interest.[10]

Prior to 1920

Before the 20th century, smallpox vaccination and sanitation measures were the major effective health services—and neither was specific to the poor or to children. The milk stations established in New York by Robert Strauss in the late 1890s were one of the first targeted attempts to improve the health of children, particularly poor children. The movement to prohibit or to limit child labor was another effort, initially unsuccessful, to improve the health of the young. In the 19th and early 20th centuries, children were working in hazardous occupations, such as mining and manufacturing. Their accident rate was appallingly high; their nutritional status suffered, partially as a result of their insufficient exposure to sunlight; and their educational opportunities were limited. Congress considered several bills outlawing child labor, one of which, the Keating-Owen Act, eventually passed in 1916, only to be declared unconstitutional by the Supreme Court in 1918.[11]

Some physicians were willing to assist poor families on a charitable basis, either receiving no payment or accepting goods or services in lieu of payment. But all too frequently cities and counties placed poor children with health problems in almshouses. These residential facilities admitted blind and deaf children, those with physical disabilities and seizure disorders, the mentally retarded, and the emotionally disturbed.

The White House Conference on the Care of Dependent Children, convened in 1909 by President Theodore Roosevelt, brought major national attention to the problems of children, including their health care. One of the conference's recommendations was the formation of a federal agency devoted to the problems of children. In 1912 President William H. Taft and Congress acted on this recommendation, creating the Children's Bureau. The Bureau, according to the law, was authorized to "investigate and report . . . upon all matters pertaining to the welfare of children and child life among all classes of our people and . . . especially [to] investigate the questions of infant mortality, the birth rate, orphanages, juvenile courts, desertion, dangerous

The Children's Bureau, created in 1912, uncovered the difficulties poor families faced: high rates of maternal and infant mortality and unequal access to medical care.

occupations, accidents and diseases of children, and employment legislation affecting children in the several States and Territories."

The Children's Bureau moved immediately to investigate child health and quickly uncovered the difficulties poor families faced: high rates of maternal and infant mortality and unequal access to medical care. The Children's Bureau could do relatively little about these problems, since it lacked administrative or enforcement authority. Its responsibilities were limited to studying and reporting on issues, functions it performed very effectively. The Bureau worked hard to inform policymakers and the general public about the problems it identified, and its efforts were often successful. It also provided nonfinancial support to the newly established local and state health department child hygiene bureaus and divisions and began publishing badly needed educational materials, such as *Infant Care*.

The 1920s

In 1921 the Children's Bureau received a mandate to intervene more actively on behalf of the health of pregnant women and children. Despite strong opposition, Congress enacted the Maternity and Infancy Act, introduced by Senator Morris Sheppard and Representative Horace Towner. The Sheppard-Towner Act passed, despite strong opposition, and gave the Children's Bureau administrative responsibility for grants to states for maternal and child health activities. States opting to take advantage of its provisions had to match the federal grants, but otherwise had considerable freedom in the use of funds. This act was credited with improving birth registration; increasing the number of state child health bureaus, prenatal clinics, and child health centers; and expanding public health nursing for mothers and children. However, the act came to an untimely end in 1929, partially because of the opposition of the American Medical Association.

During the early years of the Depression, the health needs of poor families received little federal attention, although a number of states managed to maintain some of the maternal and child health services begun with federal funds.

The 1930s

The 1930s was a period of dramatic change fueled by the need to deal with economic and social problems created by the Great Depression. President Herbert Hoover convened the 1930 White House Conference on Child Health and Protection "to study the present status of the health and well-being of the children of the United States and its possessions, to report on what is being done, to recommend what ought to be done, and how to do it."[12]

The conference produced the Children's Charter, which listed the following among the rights of children:

> For every child, full preparation for its birth, his mother receiving prenatal, natal and postnatal care; and the establishment of such protective measures as will make child bearing safer.
>
> For every child, health protection from birth through adolescence, including: periodical health examinations and, where needed, care of specialists and hospital treatment; regular dental examinations and care of the teeth; protective and preventive measures against communicable diseases; the insuring of pure food, pure milk, and pure water.[13]

Nonetheless, not until the election of President Franklin D. Roosevelt and the introduction of New Deal programs did publicly supported services for poor children again receive attention. The President's Committee on Economic Security asked the Children's Bureau staff to recommend child health and welfare provisions for the social security legislation being planned. The resulting health proposals basically made the provisions of the Sheppard-Towner Act obligatory for all states, and gave additional attention to the needs of "crippled children." Other suggestions dealt with support for dependent children and child welfare services.

The 1935 Social Security Act incorporated these ideas. Title V of this act authorized federal grants to states to promote the health of mothers and children; to locate and provide services for children "who are crippled or who are suffering from conditions which lead to crippling"; and to establish, extend, and strengthen child welfare services. Moreover, the introductory wording of the maternal and child health and crippled children sections made it clear that the focus was poor children: "for the purpose of enabling each State to extend and improve [services] especially in rural areas and in areas suffering from severe economic distress."

Title V had its intended effect, leading to the establishment of maternal and child health units in all state health departments and crippled children services units in state health departments and related institutions. Most states established or expanded clinics for pregnant women and well-child conferences for infants and children. Many states also developed school health, public health nursing, and immunization programs, usually in areas where

In 1935 Title V of the Social Security Act addressed the needs of poor mothers and children by providing funds to state health departments for services to pregnant women and infants, to school children, and to children with handicapping conditions.

BEST COPY AVAILABLE

During the 1960s major federal legislation attempted to bring high quality health care to poor families—through Maternity and Infant Care projects, community health centers, Children and Youth projects, and Head Start.

they could serve poor families. Except for certain categories of handicapped children—categories that varied from state to state—Title V programs did not cover curative services, and parents of children with acute conditions or with chronic conditions not covered by the crippled children program continued to seek charitable care in private physicians' offices or in hospitals.

The Social Security Act's Title IV created the Aid to Dependent Children program, later renamed Aid to Families with Dependent Children (AFDC). It immediately made economic support for some poor families an obligation of federal and state governments, and it later provided the way to finance their health care through Medicaid.

The 1940s and 1950s

The entry of the United States into World War II, and the tremendous growth in the number of young men in the armed services, brought about a new problem, particularly in the lowest-paying ranks. Servicemen's wives were having babies, creating a high demand for obstetric and pediatric services at bases throughout the United States and in the servicemen's home communities. In response, Congress authorized the Emergency Maternity and Infant Care (EMIC) program, to be administered by the Children's Bureau through state health departments.

From 1943 to 1948, EMIC provided health supervision and medical care to almost 1.25 million mothers and their infants. Perhaps of equal importance, it established standards for hospitals and maternity and newborn services. Many people hoped that EMIC would continue after the war and that the federal and state governments would maintain responsibility for maternity and infant care for all families whose incomes fell below a specified level. Unfortunately, EMIC was terminated and the states resumed making the decisions about which low-income families were to receive what publicly supported health services. During the years of its operation, however, EMIC strengthened state and local health departments and encouraged the development of prenatal and well-child clinics, public health nursing, and home visiting.

The 1960s

Another cycle of dramatic change arrived with the 1960s. During the presidential terms of John F. Kennedy and Lyndon B. Johnson, the federal government made major attempts to bring high quality health care to poor families. In 1962 the Panel on Mental Retardation, appointed by President Kennedy, reported

> that thousands of women of low income, especially those in our cities, were giving birth prematurely at two to two and one-half times the expected rate; that low birth weight babies were likely to have brain damage; that these women had excessive rates of complications of pregnancy; and that . . . one-fourth to one-half of women in low-income families of our large cities delivered having had late or no prenatal care. The women for whom pregnancy was accompanied by complications much in excess of the expected and who therefore needed good care were receiving poor care in crowded, understaffed hospitals.[14]

A subsequent presidential message to Congress urged legislation to create maternal and infant health demonstration projects. Federal funds for Maternity and Infant Care (MIC) projects were authorized in 1963, targeted to areas of high need throughout the United States. In contrast to the usual distribution of service funds through Title V formula grants, allocation of MIC funds was not a function of the states. Rather, funds went directly to the project applicant. Originally only state health agencies were eligible to apply or, with the state's consent, the health agency of a political subdivision. Later, again with consent, applicants included public and nonprofit agencies, institutions, and organizations such as teaching hospitals and medical schools. This financing model persisted, because of favorable reports about MIC, when the Children and Youth (C&Y) projects for low-income families were authorized in 1965.

The health of poor families was also a major concern of the War on Poverty. The Office of Economic Opportunity developed neighborhood health centers in the 1960s, again using a project grant mechanism without state involvement. (Some community health centers were later funded by the Public Health Service, and these two programs were consolidated within the Public Health Service in 1973 with a mandate to serve pregnant women, as well as infants and children, directly or by referral.) MIC and C&Y projects, as well as the new community health centers, served mainly poor pregnant women and children in the neighborhoods in which they lived, but the number of facilities was not large enough to meet the need nationwide. If health services were to be made available to a larger proportion of the population, maternal and child health project grants would have to be extended tremendously, or a system would be required for paying directly the medical bills of the poor and the medically needy. The latter approach was chosen. Under the Kerr-Mills Act states had already started funding, with federal support, certain medical services for poor families who met specified eligibility criteria. The states

In the 1960s women and children living in rural poverty were assisted by the War on Poverty's establishment of local community and migrant health centers.

wanted the federal government to pay a larger share of the cost of these services, and advocacy groups urged that differences in benefits and eligibility across states be reduced or eliminated.

Although Congress fought a major battle over Medicare (Title XVIII of the Social Security Act), Medicaid (Title XIX) passed in the same 1965 session with relatively little difficulty because it was considered to be merely an extension of existing programs. In reality, Medicaid represented a policy shift of tremendous significance to the health care of women and children—from a direct services approach to a financing mechanism. Since all families receiving AFDC were eligible for Medicaid automatically, this program became the largest funding source for health services to poor families.

Unfortunately, Medicaid proved to have significant limitations. Eligibility and covered services varied widely among the states, with many states financing a restricted range of services for a limited number of families. With few exceptions, state welfare departments received responsibility for the administration of Medicaid. These departments had no mandate and little incentive to bring families into health care or to monitor the care provided—functions that had been incorporated into programs funded by project grants. Administrative barriers, such as cumbersome application forms and long waiting periods for certification, and occasionally indifferent or even hostile caseworkers added to the difficulties poor families faced in trying to secure coverage.

Furthermore, little coordination existed between Medicaid and the programs supported by project grants. Although community health centers had expected to derive a large portion of their incomes from Medicaid, regulations in some states made it difficult or impossible for these facilities to obtain reimbursement from Title XIX funds. MIC and C&Y projects, as well as standard health department clinics, encountered some of the same obstacles. They also faced resistance from state and local staff members who were from a "service" rather than a "welfare" tradition and were reluctant to involve themselves or their patients in the welfare system.

The maternal and child health projects attempted to serve all poor families eligible for their services regardless of Medicaid eligibility. They did not always urge eligible families to apply for Medicaid, nor did they always seek reimbursement from Medicaid for services provided to eligible women and children. Since Medicaid was an open-ended entitlement, while the MIC and C&Y projects and health department clinics were constrained by the amount of appropriated funds, failure to seek Medicaid reimbursement actually limited the number of poor families served and the amount of services provided—assuming that Medicaid funds went directly to the clinic where the woman obtained services. (Some state governments retained the federal Medicaid funds or distributed them without regard to where they were generated.)

Amendments to the Social Security Act in 1967, backed by another presidential message to Congress, added a new and potentially very significant program to Medicaid—the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program. Two relevant amendments were made to Title XIX: one encouraging states to extend child coverage through "early and periodic screening and diagnosis, . . . health care, treatment, and other measures to correct or ameliorate defects or chronic conditions"; and the second requiring cooperation between the Title XIX agency and the Title V maternal and child health and crippled children

One program was truly a first—the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program. The federal government mandated that states reach out and bring poor children into health care.

programs. The Title V amendment stipulated that each state's Title V–required health plan must include in its crippled children section a provision for "early identification of children in need of health care and services, and for health care and treatment needed to correct or ameliorate defects or chronic conditions discovered thereby, through provision of such periodic screening and diagnostic services, and treatment, care and other measures to correct or ameliorate defects or chronic conditions."

The Title XIX amendments' vague provisions, plus concerns about financial and other burdens to the states, delayed EPSDT implementation. Although the legislation gave responsibility to both the Title XIX and the Title V agencies, the Secretary of Health, Education, and Welfare asked the Title XIX agency to prepare the regulations. It did so, assigning itself and the state Title XIX agencies the role of program administration, with Title V federal and state agencies serving as consultants.[15] The regulations eventually made clear that EPSDT was to be available to all Medicaid-eligible children. They required states to notify families receiving AFDC benefits about the availability of EPSDT and to finance all screening and diagnostic activities. All therapeutic services covered by Medicaid were to be provided to children whose problems were diagnosed, and vision, hearing, and dental services were to be offered regardless of state Medicaid regulations.

This program was truly a first. The federal government mandated that states reach out and bring children into care even if their families had not sought it. Although EPSDT has assisted many children, its full promise has yet to be realized. Chapter Seven describes it more fully.

In 1967 the demise of the project grant era was signaled by the passage of federal legislation requiring each state to develop a program of projects—including MIC, C&Y, family planning, dental health, and intensive infant projects—and to assume responsibility for these projects by 1972. The Children's Bureau staff may have intended to force the states to develop statewide systems of the MIC and C&Y projects. Too little money was allocated, however, and the legislation was interpreted as meaning that each state must develop at least one of each type of project.[16]

The health of low-income children was not addressed exclusively through medical programs. The education-oriented Head Start program, initiated in 1965, aimed to improve health by educating children and parents about health-enhancing behaviors, by providing nutritious foods, and by bringing children into contact with health providers. But this program was not an entitlement, and like many described elsewhere in this volume, it provided services to only a fraction of those eligible.

The 1970s

Several programs were developed in the 1970s to address the health needs of poor families. The Family Planning Services and Population Research Act (Title X of the Public Health Service Act) provided funds for family planning, a prevention service basic to maternal and child health. In some states Title X funds went to the state health department for distribution to local grantees, and in others a Planned Parenthood affiliate or coordinating body assumed responsibility—another example of questioning the ability of state governments to distribute funds in an equitable manner.

The Supreme Court also addressed reproductive health issues. In the 1973 Roe v. Wade decision, the Court made abortion legal under specific

BEST COPY AVAILABLE

The 1972 Special Supplemental Food Program for Women, Infants, and Children (WIC) included food, nutrition education, and essential health care for pregnant, postpartum, and lactating women and children under five.

circumstances, reflecting actions taken earlier by some states. In 1978, responding to rising concern about early childbearing, the Department of Health, Education, and Welfare established the Office of Adolescent Pregnancy Programs, and Congress provided funds for demonstration projects to serve pregnant and parenting adolescents.

The federal Title V agency changed its strategy during this decade. In 1976 it began funding state Improved Pregnancy Outcome (IPO) projects. The IPO program began in the 13 states with the poorest maternal and infant health indicators; but 32 states, the District of Columbia, and Puerto Rico eventually received IPO funds. In contrast to the MIC and C&Y project grants, IPO funds were to be used to build statewide systems of care both through more effective utilization of existing services and through planning and implementation of new services when needed. The program differed in several ways from previous federal child health initiatives. It was not mandated by law; it had a limited duration; and it did not prescribe specifically how the states were to achieve the objective of improving pregnancy outcomes.[17] The Improved Child Health Program (ICHP), which followed the IPO program, focused on an older age group but maintained the same approach.

Although several nutrition strategies had been initiated earlier, such as school lunches and food stamps, a major new program began in 1972, when Congress passed the Special Supplemental Food Program for Women, Infants, and Children (WIC). WIC provided food to pregnant, postpartum, and lactating women and to infants and children under the age of five. In addition, WIC required providers to offer nutrition education and ensure that enrolled women and children received essential health care, a feature not included in earlier nutrition programs. Congress set eligibility at less than 185 percent of poverty; within this group, it stipulated that children and women at nutritional risk be served first. Unfortunately, limited appropriations have made it impossible to provide WIC benefits to all those under the income limit—or even to all eligible children and women who are at nutritional risk.

In 1977 the Committee on Perinatal Health—with the participation of the American Academy of Family Physicians, the American Academy of Pediatrics, the American College of Obstetricians and Gynecologists, and the American Medical Association, and with assistance from the March of Dimes–National Foundation—published a report entitled *Toward Improving the Outcome of Pregnancy: Recommendations for the Regional Development of Maternal and Perinatal Health Services*. The report began with the following statement:

> In recent years, a number of studies have indicated that rates of maternal, fetal and neonatal mortality can be reduced if maternity patients and their newborns at high risk are identified early and the optimal techniques of obstetrics and pediatrics are appropriately applied. Additionally, it has been shown that critically ill newborns, treated with the best available techniques, survive with significantly less damage than was the case in previous decades.[18]

Although some regionalization of perinatal services and neonatal intensive care units had existed before the publication and distribution of this report, strong support for the recommendations from federal, state, and local governmental authorities and professional organizations led to a steady increase in these programs.

In 1975 Congress passed the Education for All Handicapped Children Act (P.L. 94-142). Although the act evolved from legal suits seeking educational opportunities for children who were mentally retarded, it became a truly universal entitlement, covering a wide range of handicapping conditions in children aged 5–18 (some states covered children from age three and to age 21), regardless of income. P.L. 94-142 required states to provide a free and appropriate education in the least restrictive environment to the mentally retarded, hard of hearing, deaf, speech-impaired, visually handicapped, seriously emotionally disturbed, orthopedically impaired, and multihandicapped, and to those with other impairments and specific learning disabilities. To meet this mandate, state education agencies provided some health services or linked children to them. Limited federal and state funds have made it impossible for this act to reach its full potential, but implementation has brought major improvements in the health and educational status of thousands of handicapped children.

Another federal program with major implications for poor handicapped children was the Supplemental Security Income–Disabled Children (SSI-DC) program. This program became operational in 1974 and provided cash assistance and Medicaid to certain groups of disabled children under 18.

The Lead-based Paint Poisoning Prevention Act, passed in 1971, provided funds to communities for the screening of high-risk children, for diagnosis and treatment as needed, and for the identification and elimination of sources of lead exposure. The Centers for Disease Control administered the grant program, and the Department of Housing and Urban Development oversaw housing regulations.

In 1975 Congress passed P.L. 94-142, the Education for All Handicapped Children Act, which brought about major improvements in the health and educational status of both poor and nonpoor handicapped children.

The 1980s witnessed major changes in Medicaid—finally leading to the coverage of all pregnant women and children under age six with family incomes below 133 percent of the federal poverty level.

Major childhood immunization initiatives were also mounted late in the decade.

Toward the end of the 1970s, Congress added to an omnibus health bill a provision creating the Select Panel for the Promotion of Child Health. The Select Panel's mandate was to develop "a comprehensive plan to promote the health of children and pregnant women in the United States." Its report still serves as a guide to what should be done to provide better health care for children. Unfortunately, few of the panel's recommendations have been implemented.[19]

The 1980s

The early actions of the Reagan administration caused great concern among those interested in the health of poor children. Congress narrowed AFDC eligibility, a move that affected poor children both directly and indirectly by removing them from the Medicaid program. Also, funding for many health-related programs declined, affecting community health centers, migrant health centers, and family planning services. The National Health Service Corps, which had provided personnel for many facilities serving the poor, was cut back. Several categorical programs were folded into a new Title V, the Maternal and Child Health Services Block Grant (MCHSBG). This block grant differed from the previous Title V not only in the number of programs included but also in the freedom it gave the states. It reduced reporting requirements and eliminated mandates for the Program of Projects and other programs, thus allowing states to modify their maternal and child health programs.

The crises created by these actions slowly receded as Congress became increasingly concerned about the effect of its actions on infant mortality and other child health issues, and as many states assumed new responsibilities in these areas. The 1980s witnessed major changes in the Medicaid program as it affected pregnant women and children. In a dramatic year-by-year process, Congress increased the populations eligible for Medicaid by mandating coverage of high-risk groups or by providing states with options to cover additional groups or to provide additional services. In effect, Medicaid was separated from AFDC, at least for pregnant women and young children. In addition, funds were gradually restored to many programs that provide services to poor families, including Title V and community/migrant health centers, although these funds seldom kept pace with medical inflation.

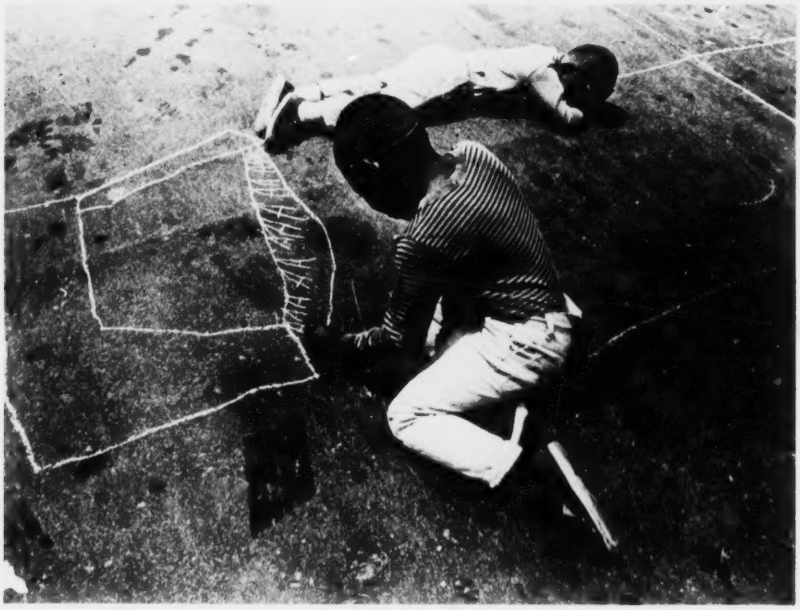
By 1990 states were required to provide Medicaid coverage to all pregnant women and children under age six with family incomes below 133 percent of the federal poverty level. In addition, many states took advantage of the option to extend coverage for pregnant women and infants to 185 percent of poverty. Congress has also now mandated or provided options for removing structural barriers to coverage—for example, reasonable provider payments, presumptive eligibility, waived assets tests, and continuous eligibility.

Despite initial concerns about the states' abilities and willingness to handle the additional responsibilities mandated in the MCHSBG, and made necessary by federal budget cuts, the years since 1981 have produced an impressive range of state initiatives covering many areas, such as improving prenatal care, reducing infant mortality, serving children with special health care needs, and assisting adolescents. In 1989, however, Congress retreated from the freedom provided states in the block grant. The 1989 Social Security amendments significantly increased accountability through reporting requirements and mandated that 30 percent of federal Title V funds be spent on preventive and primary care for children and 30 percent on services for children with special health care needs. The amendments also strengthened EPSDT.

Another major achievement of the 1980s was P.L. 99-457—the extension of P.L. 94-142 to cover children from birth to age three. And by 1990 children with special health care needs also benefited from a broadening of eligibility for the SSI-DC program. The end of the decade also witnessed the long-urged elevation of the federal maternal and child health agency to bureau status—the Maternal and Child Health Bureau—recalling the Children's Bureau of 1912.

Many of these gains were made possible by the efforts of a variety of private and quasi-public agencies that kept maternal and child health issues before federal and state legislators. These include, but are not limited to, the Alan Guttmacher Institute, the Center for Policy Options, the Children's Defense Fund, the Food Research and Action Center, the Institute of Medicine, the National Governors' Association, and the National Commission to Prevent Infant Mortality. Foundations, notably Carnegie, Commonwealth, Ford, Grant, Johnson, Mott, and Rockefeller, also helped fill the void left by the absence of federal initiatives.

One of the documents issued by the Carter administration buttressed the activities of state governments, advocacy groups, and foundations. The 1980 volume *Promoting Health/Preventing Disease: Objectives for the Nation* provided standards against which to measure federal, state, and local programs in a variety of areas.[20] Evidence of lack of progress toward meeting objectives was used



Declines in economic status and social environments may cancel out those improvements in the health status of poor children that might have resulted from 1980s health programs.

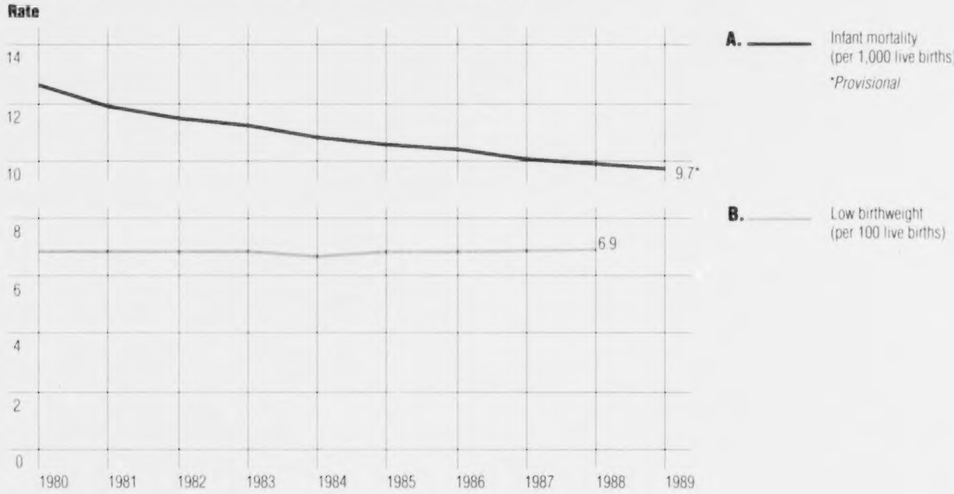
to pressure governments to provide funds for additional programs.

The nationwide impact of the programs of the 1980s, designed to reduce infant mortality and improve infant and child health, has been disappointing. The infant mortality rate has declined only slightly, and the position of the United States has worsened relative to that of other industrial nations. The proportions of low birthweight and preterm infants have remained constant.[21] (See Figure 3.) Experts suggest that the programs may have been too limited in scope or implemented inadequately.

Perhaps the programmatic efforts have simply not been able to keep pace with the dramatic decline in economic and social indicators. A larger proportion of young families are poor now than were poor in the 1970s; the number of homeless families has increased; and more poor adults have become addicted to various substances, with devastating effects on pregnancy outcomes, parenting abilities, and the amount of violence in some neighborhoods. Addiction to drugs has contributed to the increase in AIDS, with adverse effects on the lives of infants both directly through their own health and indirectly through the loss of parents.

It is unclear whether the child health activity level of the 1980s can be sustained, particularly if its efforts do not improve child health indicators. The 1990s may witness a decline in interest in child health issues or, one hopes, the enactment of one or more innovative new financing or service programs. Children in the United States, particularly the poor and near-poor, deserve a comprehensive and long-term strategy to help solve their health problems, rather than a continuation of incremental changes.

Figure 3: Rates of infant mortality (A) and low birthweight (B), 1980–1989



Sources: National Center for Children in Poverty. Based on U.S. Bureau of the Census. (1989). *Statistical abstract of the United States 1989.* Washington, DC. Also, U.S. Department of Health and Human Services, National Center for Health Statistics. (1990). *Advance report of final natality statistics, 1988* (Monthly Vital Statistics Report, Vol. 39, No. 4, Supplement). (1990). *Annual summary of births, marriages, divorces, and deaths: United States, 1989* (Monthly Vital Statistics Report, Vol. 38, No. 13). Hyattsville, MD.

Chapter Three: The Health Problems of Children in Poverty

Poor children are more likely to die in infancy or early childhood than are nonpoor children. They are also more likely to experience several illnesses and injuries, some of which are preventable. Their illnesses are likely to be more severe and of longer duration than those of the nonpoor. The reasons for these disparities, discussed in greater detail in Chapter Five, include greater exposure to environmental risks, inability to secure appropriate personal health services, and inadequate information about infant and child-related health problems and resources.

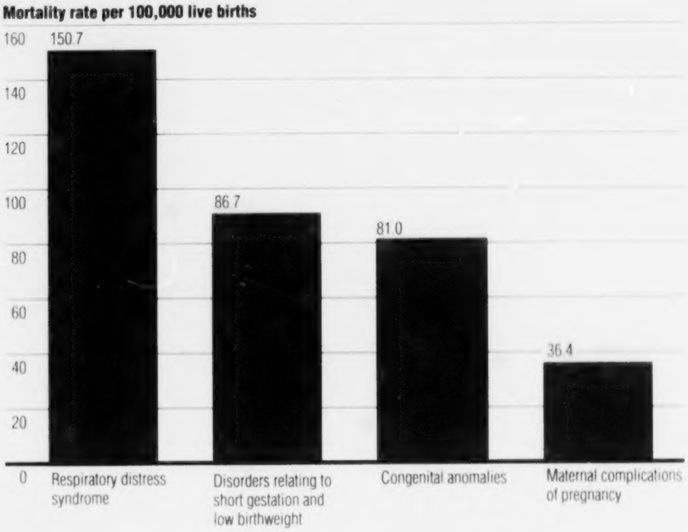
Mortality

The first studies reviewed use death as the indicator of child health status. No other indicators are as dramatic, even when they measure major aspects of child health and well-being.

Infant Mortality. The infant mortality rate in a given year is the number of deaths among infants under one year of age divided by the number of live births in the same year, usually expressed as deaths per 1,000 live births (but occasionally expressed as deaths per 100,000 live births, as in Figures 4 and 5).

The infant mortality rate for 1988 was 10.0 per 1,000 live births. The rate for blacks, 17.6, was more than twice that of whites, 8.5, probably reflecting the higher poverty rate among the black population. The National Center for Health Statistics (NCHS) has published a provisional infant mortality rate for 1989 of 9.7 per 1,000. Both the 1988 and 1989 rates are the lowest ever recorded in the United States.[22] Even so, this country ranks poorly among industrialized nations, several of which have infant mortality rates lower than 8 per 1,000. Clearly, the country has not met the Public Health Service's objective

Figure 4: Leading causes of neonatal deaths per 100,000 live births, 1987



Source: U.S. Department of Health and Human Services. (1989). *Child Health USA '89*, p. 17. Based on data from the National Center for Health Statistics compiled by the Maternal and Child Health Bureau. Washington, DC

BEST COPY AVAILABLE

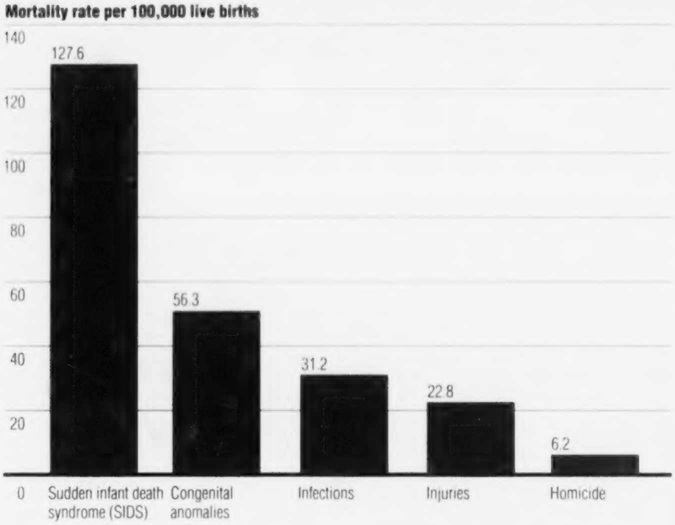
of a 1990 infant mortality rate of 9.0 per 1,000, and it is unlikely to meet the stated goal of 7.0 per 1,000 by the year 2000.[23]

Infant mortality has two components: neonatal mortality, which is the number of deaths of infants younger than 28 days, and postneonatal mortality, the number of deaths of infants between 28 days and one year old. In 1988, 63 percent of infant deaths occurred in the neonatal period; 37 percent occurred postneonatally.[24]

Using the NCHS classification, the five leading causes of death in the first year of life in 1987 were congenital anomalies, sudden infant death syndrome (SIDS), disorders related to short gestation and unspecified low birthweight, respiratory distress syndrome, and newborns affected by maternal complications of pregnancy. Regrouping some of the conditions and analyzing the neonatal and postneonatal periods separately shows that perinatal conditions, such as respiratory distress syndrome and disorders relating to short gestation and low birthweight, congenital anomalies, and maternal complications of pregnancy, were responsible for most neonatal deaths. (See Figure 4.) SIDS, congenital anomalies, infections, injuries, and homicide were responsible for most postneonatal deaths.[25] (See Figure 5.)

Since no state includes income or poverty status on its death or birth certificates, any analysis of the relationship between infant mortality and poverty must use another measure. Often researchers use the economic status of the area in which the family resides; or match birth and death certificates to another data source, such as to Aid to Families with Dependent Children (AFDC); or use a proxy item from the birth certificate, such as maternal education, age, or marital status.

Figure 5: Leading causes of postneonatal deaths per 100,000 live births, 1987



Source: U.S. Department of Health and Human Services. (1989). *Child Health USA '89*, p. 17. Based on data from the National Center for Health Statistics compiled by the Maternal and Child Health Bureau. Washington, DC.

Poor children are more likely to die in infancy or early childhood than nonpoor children. The illnesses of poor children are likely to be more severe and of longer duration.

The National Infant Mortality Surveillance (NIMS) project, which linked birth and death certificates for infants who were born alive in 1980 and died in the first year of life, included two variables that often serve as proxies for poverty: maternal education and maternal age. Mortality risk* declined with increasing maternal education and showed a sharp improvement among infants whose mothers had 12 or more years of schooling. Infants born to mothers younger than 20 or older than 35 had higher mortality risks than those born to mothers 20–35.[26]

A study of 1972–1981 deaths among individuals under age 20 in Boston classified infant and childhood deaths by the median family income of the census tract of residence. Infant mortality, neonatal mortality, and postneonatal mortality were all inversely related to family income, and rates were higher for blacks than for whites.[27]

A study of 1980 births in eight Ohio cities found a significant association between total infant, neonatal, and postneonatal mortality rates and the proportion of low-income families in the census tract where the mother resided. These differences remained when the investigators controlled for gender and race.[28]

In an examination of 1982–1983 Kentucky birth certificates, researchers distinguished between poor and nonpoor families by computer-matching with the food stamp and AFDC files. The crude infant death rate was 13.7 per 1,000 among those infants classified as poor, and 10.8 per 1,000 among those classified as nonpoor. Here, as in NIMS, the numerator was infant deaths in one year, and the denominator was the births of these particular infants (rather than births in the same year). The relative risk for poor infants as compared with nonpoor infants was significant, even after separate adjustments for maternal age and education, except among those whose mothers had 12 years or more of education. No significant difference emerged between the poor and nonpoor in relative risk (birthweight-adjusted) for neonatal death, but poor infants, especially those of normal birthweight, had a significantly higher risk of postneonatal death.[29]

In 1986 researchers studying an eight-county region of California found that uninsured newborns experienced 30 percent more adverse hospital outcomes, such as deaths, prolonged hospital stays, or transfers to another institution, than privately insured newborns. The investigators controlled for race, ethnicity, multiple gestation, and congenital anomalies.[30]

Overall Early Childhood Mortality. Mortality rates for children 1–4, or for individual ages within that range, are calculated by dividing the number of children of that age who died in a given year by the estimated number of children in that age group. Childhood mortality rates are usually expressed as deaths per 100,000. Since mortality rates for children 1–4 are relatively low—for example, 50.9 per 100,000 in 1988—analysts often use three-year averages to compare areas and sociodemographic groups.[31]

Overall childhood mortality rates are declining, although rates from some causes, including child abuse and pediatric AIDS, have increased. In the 1–4 age group, injuries resulting from accidents are the primary cause of death, followed by congenital anomalies, malignant neoplasms, homicide, and heart disease.[32] (See Figure 6.)

The Boston study described above found that mortality rates among children 1–4 were much higher in the lowest-income groups.[33] Two earlier landmark studies revealed the same pattern. An analysis of the 1975 Current Population Survey showed significant differences by annual family income and by mother's education in the proportion of children who died by age four. Children from more affluent families and those with better-educated mothers had lower death rates for all race-sex groups except black females.[34]

---

* "Risk" is used here rather than "rate" because the NIMS data concerned deaths occurring among a cohort, not births and deaths occurring in a given year.

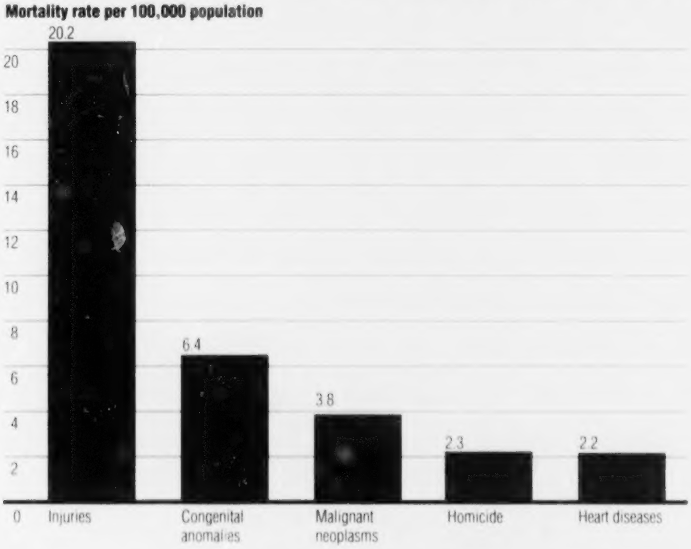
According to a 1976–1980 Maine study, the death rate for low-income children aged eight days to four years was almost three times that of the more affluent. The researchers defined low-income children as those who received services from the state's food stamps, AFDC, or Medicaid program. They estimated that in 1980 these programs served 90 percent of Maine children living under 125 percent of the federal poverty level.[35]

Deaths from Congenital Anomalies. There is no evidence that congenital anomalies, a major cause of infant and early childhood deaths, are associated with economic status. Poverty may have protected some infants from deformities due to thalidomide. Since this drug was never approved for use in the United States, only more affluent families had access to it from Europe.

Sudden Infant Death Syndrome. Both the Ohio and the Kentucky studies found significantly higher rates of SIDS among poor than among nonpoor infants.[36] A 1978–1979 multicenter study found significant relationships between SIDS and two proxies for economic status: maternal education less than 12 years and first pregnancy before age 20.[37]

Deaths from Unintentional Injuries. The major causes of fatal injuries among young children are motor vehicle accidents (in which

Figure 6: Leading causes of death among children 1–4 years per 100,000 population,1987



Source: U.S. Department of Health and Human Services. (1989). *Child Health USA '89*, p. 17. Based on data from the National Center for Health Statistics compiled by the Maternal and Child Health Bureau, Washington, DC.

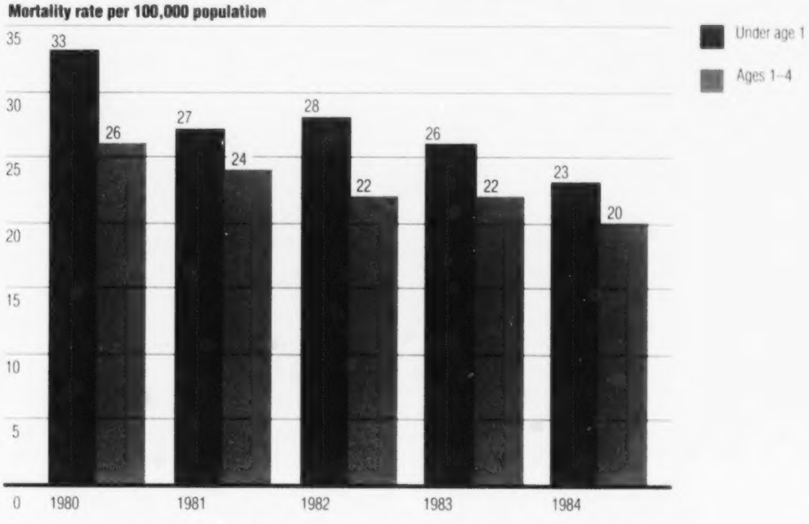
Investigations throughout the United States link a young child's risk of injury and death to living in a low-income area.

the child is a pedestrian or a passenger), drownings, fires and burns, and poisonings.[38] (See Figure 7 and Table 1.) Studies of the epidemiology of injuries suggest that the incidence of most types is highest among individuals with lower incomes or among those who live in low-income areas, but few analyses have examined these data specifically for young children.

The Ohio study of 1980 births found injuries and poisoning mortality rates higher among infants in poor areas.[39] An analysis of 1982–1984 injury-related deaths—including those from motor vehicle accidents, fire, drowning, and homicide—found mortality excesses among 1–4-year-old blacks as compared with whites for all categories except motor vehicle accidents and drowning. The authors suggested that this finding reflected socioeconomic differences.[40] Variation in accident mortality by socioeconomic status may be the main determinant of differentials in childhood mortality.[41]

Deaths from Child Abuse. From 1977 through 1982 in Cook County, Illinois, 292 children under age five died as a result of violence. Violent deaths were those classified as homicides and those for which evidence precluded attributing the death to accidental or natural causes. The rates of violent deaths in the county were 16.7 per 100,000 live births for infants under one year of age; 7.9 per 100,000 population for children 1–2, and 3.1 for children 3–4. In the city of Chicago the rates were higher: 36.7 for infants under one; 19.8 for children 1–2, and 6.4 for children 3–4. Over half (53 percent) of the 259 census tracts with one or more cases of homicide among children younger than 15 had a quarter or more of their population living below poverty, as compared with 25 percent of the 893 tracts with no child homicide recorded.[42]

Figure 7: Fatal injury rates for young children per 100,000 population, 1980–1984



Source: Robertson, L.S. (1987). *Childhood injuries: Knowledge and strategies for prevention* (PB 88-172507), pp. 2–3. Paper prepared for the U.S. Congress Office of Technology Assessment. Springfield, VA: National Technical Information Service.

Table 1: Fatal injury rates per 100,000 infants and children aged 1–4 by cause of injury, 1980–1984

Cause of injury	Infants under 1	Children 1–4
Motor Vehicle		
1980	7.0	9.2
1981	6.1	7.8
1982	5.8	7.9
1983	5.2	7.5
1984	4.4	6.9
% reduction 1980–1984	*37.1%*	*25.0%*
Drowning		
1980	2.6	5.4
1981	2.0	5.0
1982	2.6	4.7
1983	2.3	4.7
1984	1.9	3.9
% reduction 1980–1984	*26.9%*	*27.8%*
Fire		
1980	4.6	5.3
1981	3.8	5.4
1982	3.9	4.6
1983	3.1	4.6
1984	3.7	4.3
% reduction 1980–1984	*19.6%*	*18.9%*

Source: Robertson, L.S. (1987). *Childhood injuries: Knowledge and strategies for prevention* (PB 88-172507), pp. 2–3. Paper prepared for the U.S. Congress Office of Technology Assessment. Springfield, VA: National Technical Information Service.

Between 1972 and 1984 in Erie County, New York, 62 children under the age of 15 were victims of homicide. Fourteen were less than one year old, and 23 were between one and four. The number of homicides in a census tract was associated positively with the proportion of families living below the poverty level and the proportion unemployed.[13]

Deaths from AIDS. Because most cases of childhood AIDS are diagnosed in children whose mothers either are intravenous drug users or have had sexual relations with such individuals, AIDS has become an important cause of death among poor infants and children. As of August 1990, the Centers for Disease Control had identified 1,328 deaths from AIDS among children under 13 years old.[14] In 1987 AIDS was the 27th leading cause of death among infants and the ninth leading cause of death among children aged 1–4.[15] The Health and Human Services Secretary's Work Group on Pediatric Human Immunodeficiency Virus Infection and Disease expects that AIDS will be among the top five causes of death in the 1–4-year-old group by 1992.[16]

Deaths from Other Conditions. The Boston, Ohio, and Kentucky studies all reported higher rates of deaths due to infectious diseases among poor infants and children than among the nonpoor.[17] Most other studies use race as a proxy for economic status. For example, an analysis of 1980 NCHS mortality data revealed that the mortality rate from infectious diseases for black infants was twice that for whites.[18] In 1982 national rates of mortality from asthma were higher among blacks than among whites under age one and aged 1–4.[19]

Incidence and Prevalence of Health Conditions

The incidence and prevalence of several conditions are often used to describe child health status. For infants, low birthweight (under 2,500 grams, or about 5 1/2 pounds) and preterm delivery (before 37 completed weeks of gestation) are two measures employed frequently because of their association with infant mortality, with morbidity in the neonatal period, and with later health problems. The

The major acute conditions reported for children under five are respiratory conditions, ear infections, infectious and parasitic diseases, and injuries, many of which are preventable.

National Center for Health Statistics reported that in 1988, 6.9 percent of all live births were low birthweight, and 10.2 percent were preterm.[50]

The National Health Interview Survey (NHIS), an ongoing activity of the NCHS, assesses health status by the following measures:

- Incidence of acute conditions and days of restricted activity associated with acute conditions (days in bed, work-loss days, and school-loss days)
- Episodes of injury and days of restricted activity associated with injury
- Prevalence of chronic conditions, days of restricted activity, and limitation in activity associated with chronic conditions
- Respondent-assessed health status

The major acute conditions for children under five reported in the most recent NHIS were respiratory conditions (including the common cold and influenza), acute ear infections, infectious and parasitic diseases, and injuries. These were also the major reasons for restricted activity and days in bed associated with acute conditions. Children under five were reported to have an average of 10.7 days of restricted activity due to acute and chronic conditions; the rate for restricted activity was lower among black children than among white children. The rates for days in bed were almost identical.[51]

Analysts also rely on several measures of medical care utilization to describe child health problems. Rates of hospitalization and length of hospital stay by diagnosis provide some information, but hospitalization is relatively infrequent after the first year of life. Of the 33.4 million patients discharged in 1987, approximately 723,000 were under age one; only 804,000 were aged 1–4.[52] The NHIS and the NCHS hospital discharge studies provide these data.

Hospital diagnoses reflect some of the same health problems reported in the NHIS. For infants, the leading causes of hospitalization in 1984 were diseases of the respiratory system, certain conditions originating in the perinatal period, diseases of the digestive system, congenital anomalies, and infectious and parasitic diseases. In the 1–4 age group, the leading causes were diseases of the respiratory system, injury and poisoning, diseases of the digestive system, diseases of the nervous system and sense organs, and infectious and parasitic diseases.[53] The number of contacts a child has with a physician and the interval since the last physician contact are also available from the NHIS, but these data may reflect accessibility as much as health problems. (For a discussion of respondent-assessed health status, see page 40.)

Nationwide information on those health problems not listed in vital statistics or in one of the NCHS ongoing or periodic surveys is more difficult to obtain. National, state, and local data, however, address some other childhood health problems, such as child abuse and neglect.

This report discusses the health status of children in terms of the following indicators:

- Low birthweight and the associated problems of preterm delivery and intrauterine growth retardation
- Problems associated with maternal substance abuse
- HIV infection and AIDS
- Asthma
- Dental health
- Other medical problems, including preventable diseases

BEST COPY AVAILABLE

Low socioeconomic status is associated with increased risk of preterm delivery and intrauterine growth retardation. Both of these conditions jeopardize infants from birth.

- Nutritional problems
- Lead poisoning
- Mental and emotional problems
- Unintentional injuries
- Child abuse and neglect
- Limitation of activity due to chronic conditions
- Hospitalization
- Reported health status

The rates of occurrence of some conditions that affect children's health, such as anemia, lead poisoning, and injuries, are decreasing, but some indicators have remained relatively unchanged over the last few years, such as the proportion of low-birthweight infants. Other conditions are increasing, such as problems associated with maternal substance abuse, child abuse and neglect, and even measles.

Low Birthweight and the Associated Problems of Preterm Delivery and Intrauterine Growth Retardation (IUGR). In 1985 the Institute of Medicine (IOM) reviewed studies on the association between socioeconomic status and low birthweight. It drew the following conclusions:

> Low socioeconomic status measured in several different ways (social class, income, education, or census tract) is clearly associated with an increased risk of low birthweight and preterm delivery. The literature suggests that at least some of the excess risk is due to the variables that are also associated with both low social class and low birthweight. These include low maternal weight gain and short stature; certain obstetrical complications such as hypertension and pre-eclampsia; possible infection; smoking; and access, source, and utilization of prenatal care. The effect of socioeconomic status is probably the sum of multiple factors, many of which may be affected by specific interventions.[54]

A special analysis conducted for the IOM using 1981 national data from all but four states revealed the relative impact of medical care and socioeconomic-medical risk. The researchers estimated that if all the risk associated with a mother's receiving late prenatal care were eliminated, the reduction in the low-birthweight rate would be 3 percent for both whites and blacks. If, in addition, several other associated risks were eliminated—having less than a high school education, being unmarried, and problems surrounding age—birth order (including births to women under 18 years, second- or higher-order births to 18- and 19-year-old women, first-order births to women 30 or older, and all births to women 40 and over)—the reduction in low-birthweight babies would be 20 percent for whites and 24 percent for blacks. The researchers obtained similar results when they used the term "inadequate" rather than "late" prenatal care. "Inadequate" prenatal care was defined as care begun after the first trimester or an insufficient number of visits throughout the pregnancy; "late" care referred to no care or care begun after the first trimester.[55]

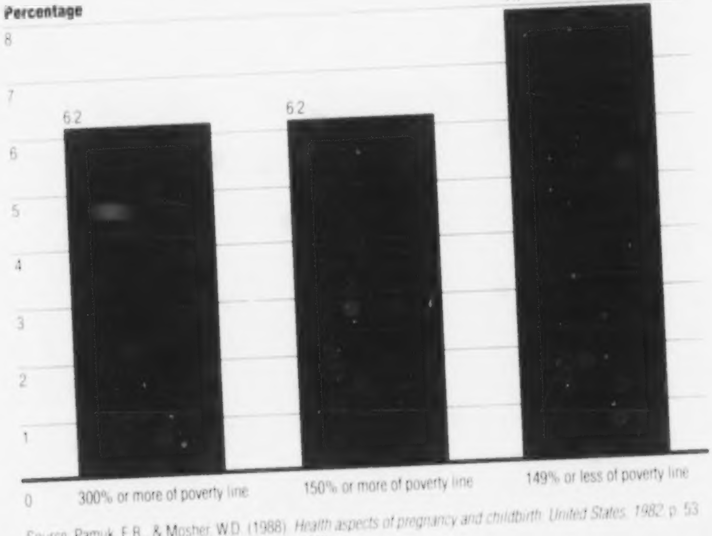
[The IOM analysis cited above, indicating a somewhat limited effect of prenatal care, should not be viewed as conflicting with studies presented in Chapter Seven showing that prenatal care can have a positive impact on rates of low birthweight. The discrepancy is due in large part to differences in data sources. The IOM study was based on birth certificates representing a large proportion of all births in the United States in the study year. Successful programs in selected communities or even in entire states would not be reflected in such a large sample. Also, most of the Chapter Seven studies describe programs that provide comprehensive, high quality care. Birth certificates, used for the IOM analysis, reflect only the amount of care a pregnant woman received, not the quality of that care.]

The 1982 National Survey of Family Growth (NSFG) revealed that 7.7 percent of single live births to women aged 15–44 living below 150 percent of poverty were of low birthweight, as compared with 6.2 percent of those of higher-income women. (See Figure 8.) Maternal education also had a strong association with birthweight; less-educated mothers gave birth to a higher proportion of low-birthweight babies.[56] (See Figure 9 on page 28.)

A 1978–1982 study of deliveries in a California hospital showed that women who experienced financial problems during pregnancy were almost six times as likely as others to bear a low-birthweight infant; the difference remained even after the investigators controlled for other variables. The researchers categorized a woman as having financial problems if the medical record indicated inability to pay for rent, bus fare, or food; unemployment of the woman or her partner; or loss of medical insurance or difficulty in obtaining medical benefits.[57]

In Los Angeles County a study of 1982 and 1983 singleton births of infants weighing over 500 grams, using 1979 median family income by census tract of maternal residence, found that the proportions of low-birthweight black and white infants increased as the census tract's median family income decreased. The poorer tracts had more pregnant women at high risk, including teenagers and women who had received inadequate prenatal care. The authors stated, "If all the mothers in the Los Angeles cohort had the same rate as those living in the most advantaged areas of the county, the total

Figure 8: Percentage of low-birthweight babies by mother's poverty status, 1982



Source: Pamuk, E.R., & Mosher, W.D. (1988). *Health aspects of pregnancy and childbirth: United States, 1982*, p. 53. National Center for Health Statistics: Hyattsville, MD.

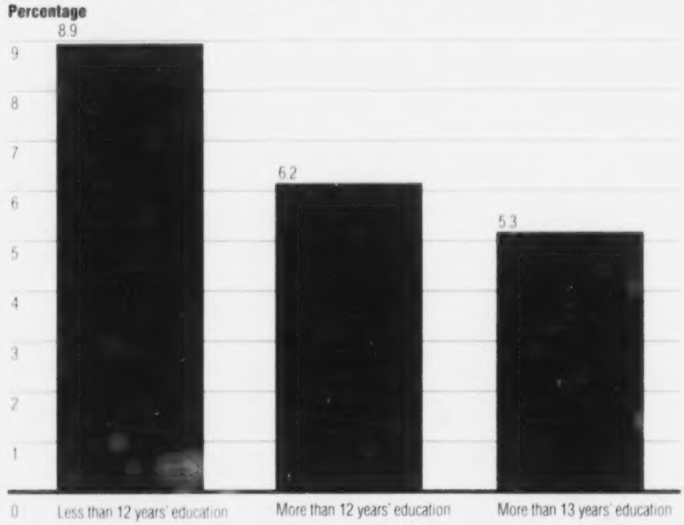
proportion of low birthweight would decrease from 4.8 percent to 4.1 percent among white infants and from 11.6 percent to 8.0 percent among black infants."[58]

In a population of women who delivered at the Boston Hospital for Women between 1977 and 1980, the presence of one or more measures of low economic status (receiving welfare support, not having graduated from high school, being single, and being less than 20 years old) was strongly associated with having a preterm birth.[59] Socioeconomic status and maternal age have also been reported to affect gestational duration by influencing direct causes, such as prepregnancy weight, prior premature delivery or spontaneous abortion, in utero diethylstilbestrol exposure, and cigarette smoking. Socioeconomic status and maternal age are also indirect causes of IUGR.[60]

Problems Associated with Maternal Substance Abuse. In many areas of the country, progress toward the reduction of infant mortality, low birthweight, and related infant health measures has stopped. Outcomes have actually worsened because of the increase in the number of pregnant women, mothers, or sexual partners using illegal substances, particularly crack. Estimates of drug-exposed newborns range from as low as 1–2 percent to as high as 42 percent, depending on the hospital studied.[61]

Tobacco, alcohol, and illegal drugs have adverse effects on the unborn child and on infants and young children. Smoking cigarettes during pregnancy has been shown to be associated with fetal and infant mortality,[62] low birthweight through intrauterine growth retardation, and preterm births.[63]

Figure 9: Percentage of low-birthweight babies by mother's education, 1982



Source: Pamuk, E.R., & Mosher, W.D. (1988). *Health aspects of pregnancy and childbirth: United States, 1982*, p. 53. National Center for Health Statistics, Hyattsville, MD.

Smoking, alcohol consumption, and illegal drug usage have adverse effects on the fetus. The consequences of substance abuse may be greater among poor pregnant women than among nonpoor women.

An analysis of the 1981 National Health Interview Survey, controlled for sociodemographic factors and birthweight, found that children under three whose mothers smoked during pregnancy had increased bed days, respiratory conditions, and hospitalizations, and they were less likely to be perceived in excellent health than children of nonsmoking pregnant women.[64] Infants and young children exposed to parental smoking have increased rates of acute respiratory and other illnesses, chronic respiratory symptoms,[65] and asthma.[66] The risk of SIDS is higher among infants of smoking women who have low hematocrit readings during pregnancy.[67]

High levels of alcohol consumption by pregnant women are associated with spontaneous abortions, preterm labor, intrauterine growth retardation, major and minor congenital anomalies, decrements in mental and motor performance, and fetal alcohol syndrome characterized by growth retardation, central nervous system involvement, and facial dysmorphology.[68] A lower level of alcohol consumption is associated with fetal alcohol effects through age four. The effects include low birthweight, decreased head circumference and length, minor anomalies, and facial dysmorphology.[69] Although the Public Health Service recommends abstaining from alcohol consumption during pregnancy, the effect of low levels of alcohol consumption is uncertain.[70]

Illegal drug use by pregnant women—including marijuana, heroin, and cocaine (and its crack form)—is associated with a wide range of negative effects on the fetus, including intrauterine growth retardation, preterm labor, and congenital anomalies.[71] Moreover, some of the infants born to mothers who use heroin have withdrawal symptoms. Children of addicted mothers may suffer long-term health problems. Women with alcohol or drug problems may also be unable to parent adequately. The result is that children may be neglected or abused, or placed in foster care.[72] One study found that in a group of poor, urban, minority pregnant women, victims of physical or sexual violence were more likely to be users of alcohol and drugs, and their partners were more likely to use marijuana and cocaine, than their peers.[73] These health and social problems have major implications for health, education, and social welfare costs.[74]

Drug use is also a major factor in the increase in sexually transmitted diseases, because prostitution is often used to obtain money for drugs. This in turn may cause health problems in newborns and young children. The current epidemic of drug use has been cited as a major factor in the increase in congenital syphilis. The Centers for Disease Control reported that the 691 cases in infants in 1988 was the highest number since the early 1950s, when penicillin became widely used to treat syphilis in pregnant women. Cases of congenital syphilis in New York were found more often among the unmarried, those who did not graduate from high school, and those receiving no prenatal care.[75] Drug abuse is also causally related to the increasing number of cases of pediatric AIDS.

While the use of tobacco, alcohol, and illegal drugs is not exclusively a problem among the poor, the impact and consequences of substance abuse may be exacerbated by poverty.

Smoking is linked to poverty. Its consequences can be expected to fall disproportionately on the poor. The 1982 NSFG revealed that 63.3 percent of women 15–44 whose most recent pregnancy ended in a live birth or spontaneous loss and whose income was 149 percent or less of

An estimated 5 million women of childbearing age were using illegal drugs in 1988—contributing to increased rates of HIV infection among newborns.

poverty did *not* smoke during pregnancy, compared with 71.6 percent of those at 150 percent or more of poverty and 72.2 percent of those at 300 percent or more. Higher income is associated with a decreased likelihood of smoking. Medicaid women were more likely than non-Medicaid women to smoke during pregnancy.[76]

Alcohol consumption is not as clearly linked to poverty, and its consequences therefore may not disproportionately affect the poor. The 1982 NSFG revealed that the likelihood of not drinking during pregnancy decreased with income: 66.4 percent of women 15–44 whose most recent pregnancy ended in a live birth or spontaneous loss and whose income was 149 percent or less of poverty did *not* drink during pregnancy, as compared with 50.4 percent of those at 150 percent or more of poverty and 46.8 percent of those at 300 percent or more. The likelihood of drinking increased with income. Medicaid women were less likely than non-Medicaid women to drink during pregnancy.[77]

The National Institute on Drug Abuse has estimated that in 1988, 5 million women of childbearing age used illicit drugs.[78] The relationship between the abuse of illegal drugs and poverty is uncertain, however, and it is difficult to state whether its consequences disproportionately affect the poor. The association may depend on whether the total use of all drugs is studied or, if only one is studied, whether it is marijuana, heroin, crack, or some other form of cocaine. Association may also depend on the study site. Studies of substance abuse in inner-city hospitals find high rates of use among the poor, but these sites serve primarily the poor. In 1989 in one Detroit hospital 42 percent of newborns were drug-exposed.[79] Studies of populations of mixed economic status do not always show higher rates of drug use among the poor. For example, a Florida study found that 14.8 percent of the pregnant women studied tested positive for either alcohol (1.0 percent), cannabinoids (cannabis-based drugs—11.9 percent), cocaine (3.4 percent), opiates (0.3 percent), or a combination of these. (Black women were more likely to use cocaine; white women more likely to use cannabinoids.) The proportion of women seen in public health clinics who used drugs did not differ significantly from the proportion of those seen in private offices. Neither socioeconomic status nor race or ethnic group predicted a positive test, but poor women and black women were more likely to be reported to authorities.[80]

A Rhode Island study of women admitted in active labor found 7.5 percent positive for either cocaine (2.6 percent), marijuana (3.0 percent), opiates (1.7 percent), or amphetamines (0.2 percent). Women with public insurance coverage were four times more likely to be positive for one of these substances than women with private insurance. Cocaine use was significantly higher among those in poverty.[81]

Although many nonpoor pregnant women smoke, drink excessively, and use illegal drugs, the effect of these behaviors in poor pregnant women is probably worse. These women may be more likely to use multiple substances, have a sexual partner who abuses substances, be ill nourished, be exposed to violence, have little social support, and not seek prenatal care.[82] Even so, probably the most famous 1980s child abuse victim, Lisa Steinberg, had middle-class white drug-abusing parents. A 1990 *New York Times* article profiled two drug-addicted mothers: a black welfare recipient and a white lawyer.[83]

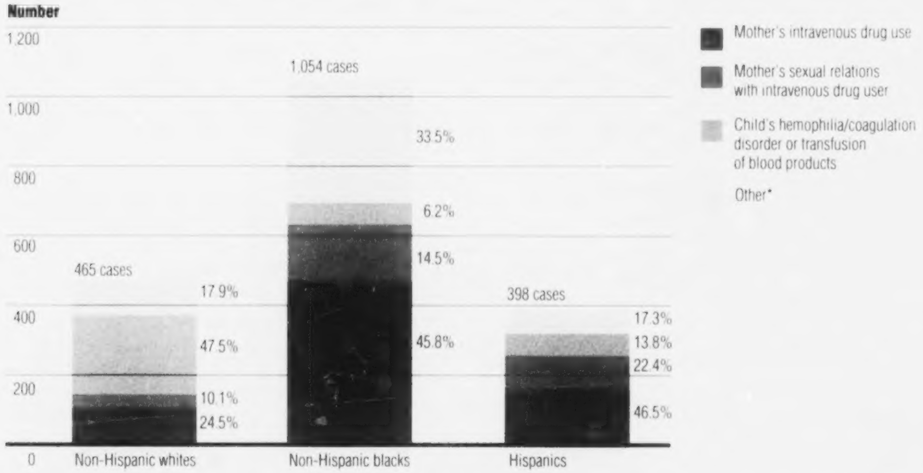
HIV Infection and AIDS. Although no published data link human immunodeficiency virus (HIV) infection and AIDS to any particular economic level, the prevalence of these conditions among intravenous drug users and their sexual partners, and the racial/ethnic distribution, suggests a strong relationship. Among all 8,556 AIDS cases in women 15–44 reported during 1981–1989, 57.2 percent were related to intravenous drug abuse, and another 20.2 percent to sexual relations with an intravenous drug user.[84]

Although probably fewer than a third of the children of HIV-infected women develop AIDS,[85] AIDS is a serious problem among children under 16, with 1,917 cases reported during 1981–1989. About four-fifths of these cases were due to vertical transmission, i.e., from the mother during gestation, during birth, or after birth. Two-fifths of the cases were among children whose mothers were intravenous drug users, and an additional 15 percent were among those whose mothers had had sexual relations with an intravenous drug user.[86] (See Figure 10.)

New AIDS cases are increasing faster among women and newborns than among most other groups. Between 1988 and 1989, the number of cases of AIDS in women increased 11 percent, and there was a 17 percent increase in the number of cases transmitted from mother to newborn.[87]

Asthma. Asthma is the most common childhood chronic illness. While study results vary, evidence suggests an association with poverty. For example, an analysis of the 1981 NHIS Child Health Supplement revealed that

Figure 10: AIDS cases in children under 16 by probable source of infection and racial/ethnic group, 1981–1989



**This category includes cases in which the cause of exposure was not determined, and those in which the mother received a transfusion or had sexual contact with a hemophiliac, a bisexual, or a male from a country where heterosexual contact is the predominant mode of HIV transmission.*

Source: Gayle, J.A., Selik, R.M., & Chu, S.Y. (1990). Surveillance for AIDS and HIV infection among black and Hispanic children and women of childbearing age, 1981–1989. *Morbidity and Mortality Weekly Report 39* (3), p. 28. Centers for Disease Control, Atlanta, GA.

Measles is increasing, largely because of unvaccinated preschool children. In many geographic areas asthma is more common among poor children than nonpoor children.

among children under five, asthma was more prevalent among those from families with lower incomes, larger size, and fewer rooms in their homes; among those whose mothers had less education and smoked; and among those who were male and black. When the investigators controlled for the interrelationships among these variables by regression, only being male, maternal smoking, and family size were independently related to the disease.[88]

In a 1985 New York City study of hospital discharges among children 1–4 years of age, discharge rates for asthma and bronchitis in the poorest areas (as measured by the proportion of the population below poverty) were over four times those in the least-poor areas.[89] An analysis of data on 3–17-year-olds from the second round of the National Health and Nutrition Examination Survey (NHANES II) reported a higher asthma prevalence among blacks than among whites, but it found no association with a poverty index, family income, or the head of household's education. Crowding was marginally related to asthma.[90]

A 1979–1982 Maryland study, however, found that Medicaid-enrolled children aged 1–19 were hospitalized for asthma 2–3 times as often as those who used other sources of payment. Asthma discharge rates were also positively associated with the proportion of families living below the poverty level in Maryland counties and health planning districts.[91]

Dental Health. Relatively few studies of oral health include analyses by economic status of children under age six. Studies of older children, however, strongly indicate that dental disease is higher among the poor, and it is likely that this situation extends to the very young as well.

The 1980 Iowa Survey of Oral Health found that children from the lowest family income groups had four times the mean number of actively decayed primary teeth as children from other income groups. The 1982–1983 South Carolina Dental Health Survey, using eligibility for a free or reduced-price school lunch as a proxy for poverty, found that 76 percent of the group cited as poor were in need of restorative dental treatment, as compared with 55 percent of the nonpoor.[92]

A recent review of the oral health status of women and children in the United States reported that while Head Start programs have noted decreasing rates of dental caries among participating preschoolers, the prevalence of dental caries in Head Start children was higher than that in non–Head Start children, and fewer Head Start children were free of caries. In 1988, 35 percent of the children examined in the program needed dental treatment, exclusive of prophylaxis. Head Start programs reported that 50 percent or more of their participants suffered from baby bottle tooth decay.[93]

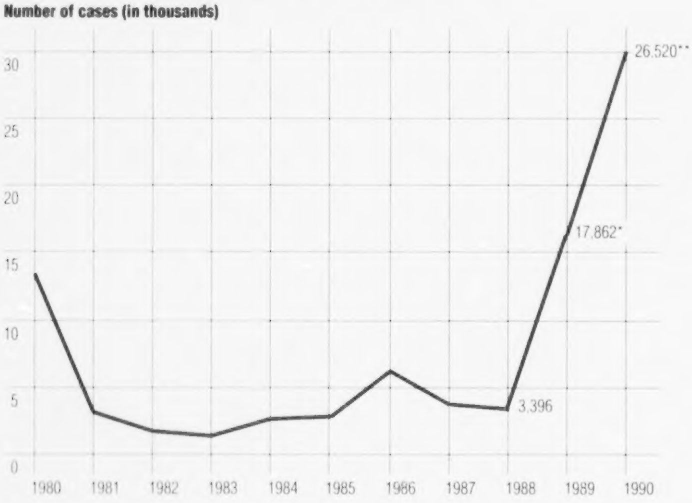
Other Medical Problems. In 1990 the Centers for Disease Control reported a provisional total of 17,862 cases of measles in 1989, a more than 400 percent increase over the 3,396 cases reported in 1988 and the largest number of cases reported since 1978. The provisional number of cases reported for 1990 is 26,520, representing another alarming increase.[94] (See Figure 11.)

Children under five accounted for 36.7 percent of the cases in 1989. Sixty percent of the cases were in individuals who had not been vaccinated or had been inadequately vaccinated, and vaccination was indicated for over half of these. Almost 40 percent of those for whom vaccination was indicated were children between 16 months and four years of age. Most of the deaths associated with measles occurred among unvaccinated preschool children. According to CDC, "The increase in unvaccinated persons with measles reported for 1989 primarily reflected the increasing number of cases reported among unvaccinated inner-city preschool-aged children."[95]

The 1981 NHIS Child Health Supplement checklist of health problems for children under 18 showed that children from high-income families ($25,000 or more) were slightly more likely than low-income children to be reported as having at least one of 10 conditions. For seven conditions, however, rates were higher among the lowest income group (less than $10,000). Except in the case of asthma, the differences were small. In addition, the number of days in bed was often significantly higher for children in the lowest income group than for those in the highest.[96] In the New York City hospital discharge study among children 1–4 years of age, rates for cellulitis, simple pneumonia, otitis media, and upper respiratory infections were about three times as high in the areas with the largest proportion of population below poverty as in the areas with the smallest proportion poor.[97]

Nutritional Problems. Poor families are less likely to have nutritionally adequate diets than nonpoor families. Children who have inadequate diets lag in growth and have more, more severe, and longer-lasting infectious diseases. Inadequate nutrition, including iron deficiency with or without anemia, may also affect cognitive development and social behavior, with undernourished children being more apathetic.[98] While several federal food programs have reduced nutritionally related

Figure 11: Reported measles cases by year, 1980–1990



*Provisional
**Estimated

Source: U.S. Department of Health and Human Services, Centers for Disease Control. (1990). *Morbidity and Mortality Weekly Report, 39* (51 and 52), p. 943, and (21), p. 353. Also, Mize, J. Personal communication.

BEST COPY AVAILABLE

Poor nutrition and the ingestion of lead contribute to the health problems of poor young children. The serious effects of lead poisoning include neurological disturbances.

problems, poor-nonpoor differences remain. The 1985 Nationwide Food Consumption Survey revealed that black children 1–5 years of age from families below 130 percent of poverty were more likely than black children of all incomes to be below the 1980 Recommended Dietary Allowances of the National Academy of Sciences Food and Nutrition Board for mean intakes of food energy, calcium, iron, and zinc.[99]

Data from NHANES I (1971–1975) and NHANES II (1976–1980) provide several measures of child growth. Among 1–5-year-olds, poor children had lower values than nonpoor children for height, weight, and triceps skinfold thickness. The magnitude of many of the poverty-related differences decreased between the two surveys, but these changes did not reach statistical significance.[100]

The Joint Nutrition Monitoring Evaluation Committee (representing the Departments of Agriculture and Health and Human Services) reports periodically on the nutritional status of the American population. One child measure it uses is growth retardation, or stunting and wasting. Stunting is the result of a chronic, mild dietary inadequacy that slows the child's linear growth and results in low height for age—shortness. If the inadequacy is severe, the child loses weight and has a low weight-to-height ratio—thinness.

The Committee's 1986 report noted that according to NHANES II, the proportion of 2–5-year-old poor males with low height for age was 11.1 percent, more than double the 5.3 percent reported for nonpoor male children. For poor female children the proportion was 14.7 percent, almost three times as high as the 5.3 percent reported for nonpoor female children.[101] (See Figure 12.)

The Committee's 1989 report cited data from the Pediatric Nutrition Surveillance System for the period 1972–1988. This system continuously monitors the nutritional status of high-risk groups of low-income infants and children. Between 9 percent and 11 percent of the study children have consistently fallen below the NCHS growth chart's fifth percentile for height for age, and 3–4 percent have been below the fifth percentile for weight for height.[102]

The Hispanic Health and Nutrition Examination Survey (HHANES), conducted between 1982 and 1984, has produced a great deal of data on Hispanic children. One study showed that Mexican-Americans 3–17 years old were slightly shorter than the NCHS reference median, although these differences were minor (less than 2 centimeters) until age 12 in girls and age 14 in boys. When researchers examined ethnicity and the HHANES poverty index in relation to height, poverty was a significant predictor of stature at ages 2–5 and 6–11 years.[103]

NHANES II also showed income below the poverty level to be associated with higher prevalence of abnormal iron status (indicating anemia) in children 1–5 and in females 25–54. Among children 1–2 years of age the proportion with impaired iron status was three times as high among those below poverty (20.6 percent) as among those above (6.7 percent).[104]

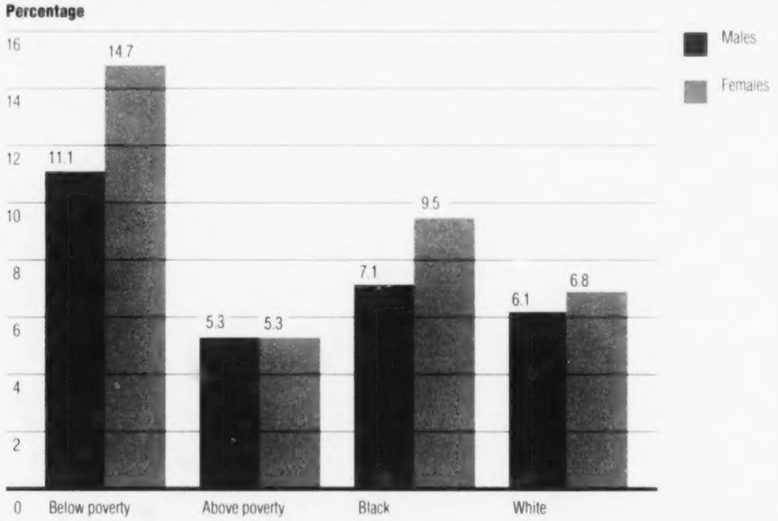
Iron status appears to have improved markedly since the 1976–1980 NHANES survey, even among low-income children, although differences by economic status remain. In a six-state study of children aged 6–60 months who were enrolled in public health programs, the prevalence of anemia based on hematologic measurements declined from 7.8 percent in

1975 to 2.9 percent in 1985. Tennessee data, however, which linked birth certificates for the 1975–1984 period with records from the Special Supplemental Food Program for Women, Infants, and Children (WIC), showed significant differences in the prevalence of anemia among children aged six months through five years by a measure of family socioeconomic status based on maternal age, education, and marital status, even within this low-income group.[105]

Data from a 1987 study in a low-income area of New Haven, Connecticut, showed that 18 percent of families with children 1–11 years old had a chronic hunger problem, and another 7 percent were at risk of developing one. The researchers classified a family as having a hunger problem if the respondent gave positive answers to five or more of eight questions dealing with hunger-related issues, such as the number of days a mother perceived her children as eating too little. A score of 4 indicated a serious risk of developing a hunger problem. "Hungry" households were found to be poorer than "adequate" households.[106] (For a comprehensive review of the nutritional status of low-income preschool children see Kotch and Shackelford's 1989 monograph.[107])

Lead Poisoning. Exposure to lead during the prenatal period or in the early years after birth has strong detrimental effects on children, ranging from convulsions and death after acute lead poisoning to growth and neurological disturbances and reduced IQ at lower exposure levels. NHANES II revealed that in children aged six months through five years, the mean blood lead concentration was negatively associated with family income.[108] As of 1989, children living in central cities were found to

Figure 12: Percentage of children aged 2–5 whose height measured below the 5th percentile of standard height, by race and poverty status, 1976–1980



Source: U.S. Department of Health and Human Services, U.S. Department of Agriculture. (1986). *Nutrition monitoring in the United States—A report from the Joint Nutrition Monitoring Evaluation Committee*, p. 213. Based on data from the National Health and Nutrition Examination Survey.

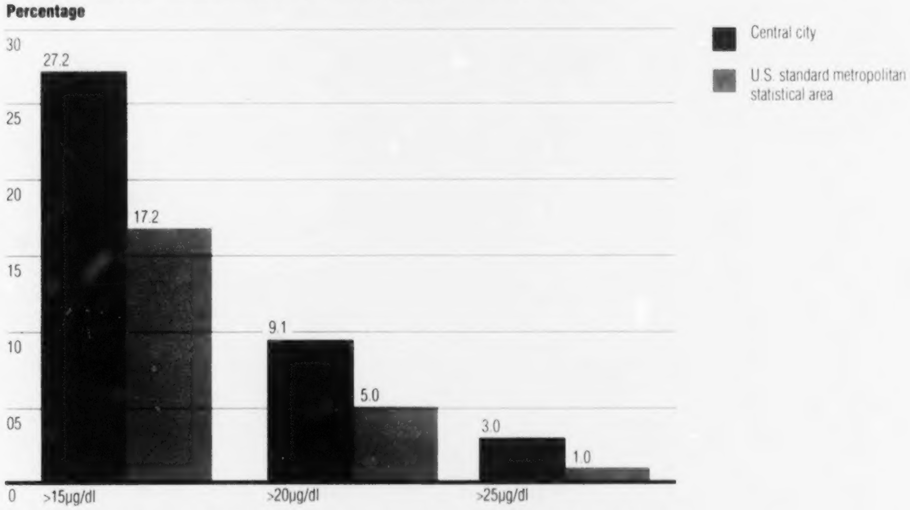
have higher levels of lead concentration than children in standard metropolitan statistical areas.[109] (See Figure 13.)

The federal Agency for Toxic Substances and Disease Registry used NHANES II and 1984 population data to update estimates of blood lead levels in 1988. At the three levels measured (more than 15 micrograms, more than 20 micrograms, and more than 25 micrograms of lead per deciliter of whole blood), and both inside and outside of central cities of standard metropolitan statistical areas (SMSAs), rates of lead poisoning went down as income went up, and rates for blacks were much higher than those for whites. (No level of lead is without danger for the individual, and the impact increases with the level of concentration.)

The Agency estimated that 2.4 million (17 percent) black and white children living in SMSAs had blood lead levels above 15 micrograms per deciliter in 1984. While elevated blood levels were highest for inner-city, low-income black children, between 3 and 4 million children in all racial and residential categories had this level. The highest rates were among black children under age six: 68 percent for those with family incomes under $6,000 who live in an "inside central city" area with a population over 1 million, and 56 percent for those living in a similar area with a million or less.[110]

In 1985 the Centers for Disease Control lowered its definition of an elevated blood level from 30 micrograms per deciliter to 25 or greater.[111] Since recent studies have shown adverse effects of lower levels of lead on growth, intelligence, and behavior, a CDC special advisory committee is expected to recommend that the definition be lowered to 10 or 15 micrograms.[112]

Figure 13: Percentage of children aged 6 months to 5 years whose blood lead levels were estimated to be excessive, by urban status, 1984



Source: Public Health Foundation. (1990). Laboratories seek new technology to screen for lead poisoning. *Public Health Macro View, 3*(3), p.1. Washington, DC. Based on the Agency for Toxic Substances and Disease Registry.

Poor children are believed to experience more mental and emotional problems than nonpoor children— and higher percentages of them have learning disabilities.

While the public tends to think of lead poisoning only in terms of paint, children are exposed to lead in many ways: through the placenta while they are in utero, in the air they breathe, and in water from pipes or cans. Sources are both industrial and household-based, including dust, soil, and exhaust fumes. Other sources include:

- Toys containing lead, such as lead figures
- Folk remedies
- Cosmetics
- Jewelry
- Lead-containing dust transmitted from the workplace on clothing
- Production of bullets or fishing sinkers
- Soldering and stained-glass work
- Pottery glazing
- Gasoline sniffing
- Burning of batteries, colored newsprint, lead-painted objects, and waste oil

Mental and Emotional Problems. Poor children are believed to experience mental and emotional problems more frequently than nonpoor ones.[113] The 1987 report *Children's Mental Health: Problems and Services* noted the relationship between poverty and minority group membership and environmental stresses. The authors believed that these stresses posed risks to children's mental health.[114]

It has been difficult to document these relationships generally, and in children under six particularly, because of the absence of valid and reliable instruments for measuring these phenomena and because of the small number of community-based surveys. One review attributed the social class differences in children's psychiatric disturbances found in clinic studies to referral patterns, since community surveys did not reveal the same problems.[115] Also, most learning disabilities and emotional or behavioral problems do not become apparent until the child enters school.

In a 1979 study of mental health problems identified in pediatric practices in Monroe County, New York, the prevalence of such problems among preschoolers was 3.5 percent. For all children under 19, mental health problems were inversely related to the socioeconomic status of the residential area and were much more common among Medicaid patients than among those covered by private insurance. The absence of either a mother or a father almost doubled the rate, as did the presence of a stepparent.[116]

The relationship between poverty and various mental and emotional problems was tested in the 1988 National Health Interview Survey of Child Health. Parents were asked to report developmental delays in all children under 17 and to report learning disabilities and emotional or behavioral problems lasting three months or more in children 3–17. The researchers expected that learning difficulties and emotional and behavioral problems would be found more frequently among children in families with low incomes and low parental education because of less intellectual stimulation in these homes and more exposure to environmental hazards. On the other hand, parents with more education tend to report proportionately more of their children's problems to survey interviewers than do less-educated parents.

Delays in growth or development were reported in 4.3 percent of all children 2 years old and under, and in 4.4 percent of those 3–5. In the younger group, 6.9 percent of those from families with incomes of less than $10,000 per year were reported, as compared with 4.4 percent, 2.6 percent, and 5.0 percent in higher income groups. Among 3–5-year-olds, the proportions were 5.8 percent, 4.1 percent, 6.1 percent, and 2.5 percent. The mother's educational level reflected a similar pattern.

BEST COPY AVAILABLE

Almost half of all reported cases of child abuse and neglect are in children under six, and the number is growing. The rate of reported cases is higher among poor families.

Learning disabilities were reported in 1.6 percent of all children 3–5, but in 3.8 percent of those in the lowest income group. Maternal education was also inversely related to reported learning disability. Emotional or behavioral problems were reported in 5.3 percent of children 3–5, with the lowest and highest income groups falling below that, and the intermediate ones being higher. There was no consistent relationship with maternal education. These data suggest that only learning disabilities are strongly related to income and educational status in young children, although research findings based on testing might find relationships not apparent from self-reporting.[117]

A 1990 article on intellectual impairment in children from impoverished families summarized earlier research findings as follows: "Mild mental retardation is more prevalent among lower socioeconomic groups, unlike moderate, severe, and profound mental retardation which are fairly evenly distributed across socioeconomic groups. Family and social problems of many low-income families (e.g. low education, unemployment) have been associated with impaired intellectual functioning in general, and mild mental retardation in particular."[118]

Unintentional Injuries. Injuries that do not result in fatalities are more difficult to study than those that do. Nevertheless, several investigators have analyzed nonfatal injuries among young children. Among 164 infants treated for injuries at two Seattle hospitals in 1985–1986, a higher proportion were covered by Medicaid than by private insurance, but the difference was not significant.[119]

In a study of 1982 pedestrian injuries among children under 15 in Memphis, several indicators of economic difficulties were significantly higher in census tracts with injuries than in those without. The indicators included the proportion of families living below the poverty line, the median household income, the proportion of female-headed households, household size, median number of persons per room, and other measures of crowding. A stepwise multiple regression analysis showed that crowding was the best predictor of number of injuries per acre.[120]

In the New York City hospital discharge study among children 1–4 years of age, rates for poisoning were over five times as high, and for arm and leg fractures about three times as high, in the poorest areas as in the least-poor areas (measured by proportion of population living below poverty).[121]

Child Abuse and Neglect. Almost half (43 percent) of reported cases of child abuse and neglect are in children under six.[122] The association between child abuse and neglect and low socioeconomic status is disputed, but the rate of reported cases is higher among poor families. Some investigators believe that this is a reporting phenomenon—that is, given two children with similar problems, authorities are likely to decide that a poor child was abused or neglected and that a nonpoor child injured himself or had a bad day.

An analysis of the 1979–1980 National Study of the Incidence and Prevalence of Child Abuse and Neglect examined the child abuse cases identified by hospitals and the likelihood that the hospitals would refer the case to child protection agencies. Cases were more likely to be reported if the family income was under $25,000 and if an adult male other than the natural father lived in the household rather than the biological father or no father. Unreported cases were likely to involve children who were victims of emotional abuse, those from higher-income households, those from settings in which the mother was the alleged abuser, and those from white families.[123] (See Table 2.)

Other investigators believe that only a portion of the difference in abuse/neglect rates between the poor and the nonpoor is a function of selective reporting, and that the remainder is due to real differences in discipline and control of violence between the two groups. Pelton's 1978 article "Child Abuse and Neglect: The Myth of Classlessness" is a classic defense of this position. He based his argument on the following findings:

- Despite significant increases in reporting, the socioeconomic pattern revealed in reports has not changed markedly.
- Child abuse and neglect are related to degrees of poverty.
- The most severe injuries occur in the poorest families.
- Crimes of violence are more prevalent in low-income groups.[124]

The Office of Technology Assessment (OTA) reached a similar conclusion in 1988:

> On balance, it seems reasonable to conclude that although some poor people are unfairly reported for maltreatment (and some middle- and upper-class families go undetected), there is an important association between poverty and child maltreatment. It is important to recognize, though, that most poor people do not abuse or neglect their children.[125]

The 1986 Study of National Incidence and Severity of Child Abuse and Neglect found that family income had a profound effect on the incidence of child abuse cases known to local child protective service staffs or professionals in schools, hospitals, police departments, juvenile probation authorities, and similar agencies.[126]

In 1986 the House Select Committee on Children, Youth, and Families asked the relevant agency in every state to rank 10 factors that might have contributed to a sharp increase in reporting of child abuse and neglect. More than 60 percent ranked "economic conditions of families" among the top three.[127]

Limitation of Activity Due to Chronic Conditions. Although young children are less likely than older ones to be limited in activity because of chronic conditions, 1–4-year-olds from families with incomes under $20,000 suffer more limitations than do those from higher-income families.[128]

Table 2: Child maltreatment rates per 1,000 children by type of maltreatment and family income, 1986

Type of maltreatment	Family income Less than $15,000	 $15,000 or more
All maltreatment	54.0	7.9
All abuse	19.9	4.4
Physical abuse	10.2	2.5
Sexual abuse	4.8	1.1
Emotional abuse	6.1	1.2
All neglect	36.8	4.1
Physical neglect	22.6	1.9
Educational neglect	10.1	1.3
Emotional neglect	6.9	1.5
Fatal injury	0.03	0.01
Serious injury/impairment	6.00	0.90
Moderate injury/impairment	30.90	5.50
Probable injury/impairment	5.40	0.90
Endangered	11.70	0.60

Source: National Center for Children in Poverty. (1990). *Five million children: A statistical profile of our poorest young citizens*, p. 59. New York, NY. Based on National Center on Child Abuse and Neglect. (1988). *Study findings: Study of national incidence and prevalence of child abuse and neglect: 1986.* Washington, DC.

Hospitalization. An analysis of the 1983–1984 data from the National Hospital Discharge Survey showed that children under age one and aged 1–4 whose principal source of payment was Medicaid had discharge rates 2–3 times as great as those of their peers who were covered by private insurance or by cash payment. The length of stay of 1–4-year-olds covered by Medicaid was significantly longer than that of privately insured children.[129]

In New York City, 1984–1985 hospitalization rates for infants were much higher in the poorest communities than in middle- and upper-income areas.[130] Similarly, among children 1–4 years of age, hospitalization rates increased with the proportion of the area's population who lived below the poverty line. Poor children were also more likely to have an unscheduled admission and were likely to stay in the hospital longer. The researcher suggested several reasons for the higher hospitalization rates.

Trauma and lead poisoning, as well as poor nutrition and inadequate heating and plumbing might contribute to the incidence and severity of illness. Difficulty in obtaining medical care that might have prevented the condition or enabled it to be managed on an ambulatory basis was another possible factor. Finally, physician treatment patterns probably affect poor children. Hospital-based ambulatory care, in the outpatient clinic or the emergency room, is more likely to result in an admission than care in a private physician's office, and a physician's doubts about a poor family's ability to manage a child's condition may also lead to hospital admission.[131]

Reported Health Status. One NHIS indicator of health is respondent-assessed health status. In the case of children under six, the mother is usually the respondent; she reports whether the child's health is excellent, very good, good, fair, or poor. An analysis of 1982–1986 NHIS data found reported health status in poor infants and children 1–5 years old significantly lower than that among the nonpoor. The likelihood of a parent's reporting a child to be in excellent, very good, or good health increased with the parent's income.[132]

Children aged 1–4 from low-income families are hospitalized more frequently than more affluent children of the same age.

Chapter Four: Children with Special Problems That Affect Their Health

For some poor children, unstable or dangerous physical environments, isolation and the absence of adequate and available health services, or other special conditions exacerbate economic difficulties. These situations affect children who do not have permanent homes because low-cost housing is unavailable, or those whose parents are migrants, or those who are in foster care. Children who live in rural areas, those residing in inner cities, and Native Americans also face significant health threats.

Certainly other groups of children also have special problems that affect their health. However, this analysis focuses on these six because their problems seem particularly pressing, because studies of their health problems illustrate how other risk factors compound poverty, and because in three instances (foster care, the homeless, and Native Americans), federal, state, and local governments have special relationships to these groups.

Homeless Children. The 1988 report of the Joint Center for Housing Studies stated:

> America is increasingly becoming a nation of housing haves and have-nots. While the majority of American homeowners are well housed and have significant equity in their homes, the prosperity of these homeowners does not reflect the plight of the nation's growing number of low- and moderate-income households. Continuing high housing costs limit the ability of low- and moderate-income households to improve their standard of living as many households struggle to secure even minimally adequate housing.[133]

These calm and precise words obscure the personal worlds of deprivation and despair that large numbers of children live in—a despair described in Kozol's 1988 book *Rachel and Her Children: Homeless Families in America*.[134] Families with children do not *choose* to spend a few nights in shelters, or months or years in welfare hotels and motels. Rather, they cannot find housing they can afford. A shortage of rental housing, increasing costs of available rental housing, and AFDC payments that have not kept up with the cost of living have left thousands of families with children without permanent places to live.

The exact number of homeless families with children is not known. The U.S. General Accounting Office estimated that on October 24, 1989, 68,000 children and youths aged 16 and younger were members of families who were literally homeless—about 25,500 were in urban shelters and hotels; 21,800 in suburban and rural area facilities; 4,000 in churches; 9,000 in abandoned buildings, cars, or public places; and 7,700 in other settings. Another 186,000 children and youth were "precariously" housed, doubled up in shared housing. Among the children whose ages were reported, 52 percent were aged five years and younger. These figures did not include homeless runaways.[135]

The Institute of Medicine's report *Homelessness, Health, and Human Needs* stated that families with children were the fastest-growing subgroup among the homeless.[136] Many pregnant women are among these homeless families. A 1988 New York City study found that 35 percent of homeless women were pregnant, and 26 percent had given birth within the last year. These were much higher proportions than those for a housed sample. Possible reasons for this difference are the housing assistance priority given to pregnant women and new mothers, and the strains that pregnancy or the birth of an infant places on an individual living in a marginal housing unit.[137]

Homeless preschoolers experience more health problems than other preschoolers. The problems include nutritional ailments and developmental lags.

An analysis of the 1982–1984 reproductive experience of women in New York City's hotels for the homeless found that relative to women who lived in housing projects and to all New York City women, the study group had 2.5 and 4.1 times the risk of receiving no prenatal care. Their relative risk for low birthweight was 1.4 and 2.9, respectively; and for infant mortality, 1.5 and 2.1.[138]

Living in temporary facilities creates many health problems. Advocates have reported lead and asbestos hazards and other health, building, and housing code violations. Window guards may be absent; the space may have no cooking or refrigeration facilities; play areas may be absent or inadequate; and cribs may be unavailable. Furthermore, temporary facilities are sometimes used for prostitution and drug dealing.[139]

Researchers have found that preschool homeless children experience excess numbers of common health problems—such as minor upper respiratory infections, minor skin ailments, ear disorders, gastrointestinal problems, traumas, eye disorders, lice infestations, anemia, malnutrition, and refractory asthma. In addition, these children have immunization delays, elevated blood lead levels, and increased rates of hospital admission, child abuse, and neglect.[140]

A 1985 survey of 80 homeless mothers and 151 children in Massachusetts found that almost two-thirds of the mothers either lacked or had only minimal supportive relationships. The study covered 14 family shelters in nine communities. Almost two-thirds of the mothers had not found housing or social welfare agencies to be helpful. In a Boston substudy of poor, female-headed households, the researchers compared housed and homeless families. The homeless mothers reported fewer adult supports, including family members; 22 percent of the homeless, but only 2 percent of the housed, said they had no adult supports. Homeless mothers reported less involvement with housing or human service agencies, and a smaller proportion were receiving WIC benefits. On the Denver Developmental Screening Test, 54 percent of the preschool children of these homeless mothers, as compared with 16 percent of those who were housed, showed at least one major developmental lag.[141]

Numerous private and public agencies attempt to provide services for homeless pregnant women and children. In New York City the Pediatric Resource Center at Bellevue Hospital offers services to nearby welfare motels, as do various other agencies. The New York Children's Health Project has operated mobile medical units for welfare hotels and shelters.[142]

The American Academy of Pediatrics 1988 statement "Health Needs of Homeless Children" recommended that pediatricians be aware of the problem of homeless children in their communities and become involved in local relief, social services, and advocacy programs. It suggested that pediatricians educate social service agencies about the medical problems for which homeless children are at risk, and work with them to develop comprehensive systems of care. It also urged national health and safety guidelines for temporary residences and the provision of federal primary health care grants for the homeless with emphasis on preventive, mental health, and dental care for children.[143]

Homelessness, Health, and Human Needs recommended that federal support for enriched day care and Head Start programs be expanded and coupled with outreach efforts that encourage homeless parents to take advantage of enrichment programs. It also recommended that local and state agencies receiving federal Head Start funds be mandated to develop plans to identify and evaluate homeless children of preschool age and to provide intensive and comprehensive services for them and their families.[144]

Children in Migrant Families. Migrant families typically travel in the spring from the southern areas of the United States—primarily Texas, Florida, and California—but also from Mexico, Haiti, and Puerto Rico, to farm regions throughout the country. Most family members over 16 years of age work daily, usually on a piece-rate basis.[145]

Estimates of the number of migrant and seasonal farm workers and their families vary, but the total may be as high as 3 million or as low as 200,000, depending on the definition used.[146] Estimates of the number of children in migrant families are difficult to obtain. The Migrant Student Record System registered 86,900 migrant children in schools and preschool programs between July 1, 1983, and June 30, 1984. This figure is very likely an undercount by at least a third, since many preschool programs and some primary and secondary schools do not participate in this system. The poverty status of migrant families is also unknown, but the low rate of pay and the seasonal nature of their employment probably places most below the poverty line. A 1986 estimate of the average annual income for a migrant family of seven was $6,000–$7,000.[147]

The health problems of migrant farmers and their children are a result of both poverty and poor living conditions. Some farm labor camps have decent accommodations with adequate sanitation and a clean water supply, but others have

The health problems of children in migrant families reflect poverty, poor living conditions, and a lack of accessible services, including bilingual health providers.

BEST COPY AVAILABLE

temporary shacks with families sharing one room, substandard sewage disposal, and no safe water supply. Other health hazards include exposure to pesticides and other chemicals, inadequate nutrition, and sporadic or nonexistent medical care.[148] The rate of child abuse and neglect among migrant families may be higher than the national norm.[149] Language barriers, cultural beliefs, and minimal parental education often compound the environmental problems.

A mid-1980s health program for several hundred migrant children and their families in migrant day care centers in eastern Washington reported four common health problems: diseases and conditions arising from poor living conditions and migration; nutrition-related conditions; untreated congenital anomalies; and health problems due to neglect, lack of treatment, or inadequate treatment. Documented medical conditions in preschoolers included viral and bacterial infections, head lice and scabies infestation, positive tuberculosis skin tests, and insufficient or excessive immunization.[150]

In seven Head Start centers in Utah, of 198 migrant children tested, the proportion found to be iron-deficient was 29.7 percent among infants 9–23 months, 13.5 percent among toddlers 2–4 years old, and 3.1 percent among children 4–6 years old.[151] In a study on the Delmarva Peninsula, 28.9 percent of 156 migrant-family children under six were found to be infected with intestinal parasites.[152] A 1988 survey of Hispanic elementary school migrant children in Washington State revealed rates of dental decay higher than national norms.[153]

In 1981 researchers studied a small group of Mexican-American migrant children, aged seven years or younger, in day care centers in state-run northern California migrant camps. They found improvements over earlier studies in the children's weight for age, height for age, and weight for height. Only 15 percent of the children were at or below the 10th percentile of height for age, and only 7.6 percent had unacceptably low hematocrit levels. The authors proposed that the differences might have resulted from changes in the standards used between the studies or in the food and services provided at the day care centers.[154]

Steinbeck's *The Grapes of Wrath* alerted the American public to problems faced by migrant workers in the 1930s. The Children's Bureau and the Public Health Service began working on the problem in the mid-1950s. Edward R. Murrow and Fred W. Friendly's television documentary "Harvest of Shame," aired in the early 1960s, again brought the problem to public attention. The 1962 Migrant Health Act authorized grants for family health service clinics—Migrant Health Centers (MHCs)—for domestic agricultural migratory workers and their families, and provided funds for special projects to improve health services and health conditions. As of 1990 there were 105 federally funded migrant and community health centers providing medical services to more than 500,000 migrant and seasonal workers.[155]

The Head Start program has made special efforts to reach migrant children, serving approximately 20,000 yearly through 24 migrant programs.[156] Some of these programs refer the children to migrant health centers for care, but if no MHCs are available, Head Start contracts with other providers.

The Medicaid status of migrant families varies from state to state, depending on local eligibility requirements. These requirements affect access to health services, including the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program. In 1989 the American

An American Academy of Pediatrics committee reported in 1987 that 80 percent of children in foster care have experienced physical or sexual abuse or neglect.

Academy of Pediatrics Committee on Community Health Services issued a statement, "Health Care for Children of Migrant Families," recommending ways pediatricians could help migrant children. The Committee suggested that pediatricians accept office referrals for health evaluations and services; volunteer time free of charge when no other option is available; improve bilingual office skills; and promote improved federal, state, and local insurance and grant strategies to ensure that child health services became more available.

> Migrant worker families should have access to affordable health care for their children. Citizenship, financial resources, or language differences should not deter access to health care. It is our responsibility as pediatricians, individually and as an organization, to do all that we can do to assist in the provision of care to this group of children.[157]

Children in Foster Care. In 1987 the American Academy of Pediatrics Committee on Early Childhood, Adoption, and Dependent Care prepared a statement, "Health Care of Foster Children," which included the following considerations:

> Children entering foster care generally have a higher than average number of health problems and the care they receive is usually insufficient to meet their needs. These circumstances arise from the preplacement history of these children and from within the dual systems of foster care and publicly funded health care to which responsibility for their well-being is assigned.
>
> Children enter foster care because their parents are unwilling or unable to provide for their physical and emotional needs. Most often, these children come from single-parent households where poverty, lack of formal education, and absence of social support contribute to inadequate and inappropriate child care. More than 80% of the children have experienced physical or sexual abuse and/or neglect. Their previous health care is likely to have been fragmented. As a consequence, foster children are likely to have unrecognized or untreated chronic disorders, a high rate of emotional and developmental problems, and impaired school performance.[158]

In 1989 at least 360,000 children were in foster care. This represented a 33 percent increase since 1985.[159] The increase is probably related to the growth in the use of substances such as cocaine, which often causes infants and young children to be removed from their parents. Drug abuse is also related to maternal AIDS, which may lead to parents' inability to care for young children and to children's becoming orphans. This assumption would seem valid since New York, a state that has suffered disproportionately from both drug abuse and AIDS, has experienced the largest increase in foster care children, 75 percent between 1985 and 1988.[160] California and Michigan also reported increases between 1986 and 1988 in the number of children who entered foster care.[161]

A 1985 survey revealed that the median age of children entering foster care was nine. However, 10 percent of the estimated 18,256 children under 21 entering foster care that year were less than one year old, and 25 percent were between one and five years old.[162]

Under Title IV-E of the Social Security Act, foster or adoptive children who would be eligible for AFDC if living with their natural parents are eligible for Medicaid. States have

BEST COPY AVAILABLE

The level of poverty and isolation in rural areas contributes to a dearth of prenatal services and inadequate health care for infants.

the option to extend Medicaid coverage to foster and adoptive children who would not meet this criterion.

A 1982–1983 study of Medicaid-eligible foster children in four states found that they had considerably higher health care utilization and expenditures, on average, than those who were Medicaid-eligible because their families received AFDC cash payments. Explanations suggested by the authors were that many foster and adoptive children had been abused, neglected, and exploited. Also, foster/adoptive parents might be more willing and able to seek medical care for the children than were the biological parents. Within the foster care/adoptive group, children whose parents had not been AFDC-eligible experienced even greater health care utilization and expenditures than those in the mandated program—perhaps because those coming from AFDC families had prior access to health care services. Those in the optional program may have come from two-parent, low-income families who did not have any health coverage.[163]

A 1985 study of the organization and delivery of health services to children in foster care in 14 California counties found the services "often poorly organized, fragmented, and inadequate for the health care needs of the children." Some counties provided all children with initial health evaluations, while other counties made case-by-case determinations. In some cases EPSDT standards were the guidelines used; in others the providers established their own standards. Only two counties performed mental health evaluations on a significant proportion of children, with the remaining counties examining only 10–33 percent of the children. Foster families often could not find Medicaid providers who would take the responsibility for their children's health care.[164]

Pregnancy is not unknown among young women in the foster care system. Yet a study of public child welfare agencies in 48 states indicated a general lack of policies for addressing this issue. Only 29 states offered foster parents special training in adolescent sexuality, and only 19 provided this type of training to caseworkers.[165] A study of young women aged 13–18 in the child welfare system found that among the sexually experienced, a significantly lower proportion in foster care than in their own homes had used a contraceptive during their most recent intercourse. The pregnancy rate in the child welfare group as a whole was more than twice that in a national sample.[166]

The particular tragedy of foster children is that unmotivated parents or inadequate family resources cannot be blamed. These are children the state has taken from their families and for whom the state is legally responsible. If they are not receiving adequate health care, the state has failed them, and study after study shows that states have indeed failed many of these children.

Children in Rural (Nonmetropolitan) Areas. Nonmetropolitan areas have higher poverty rates than other geographic areas. In 1988 the poverty rate in nonmetropolitan areas was 16.0 percent, compared with 13.1 percent across the nation and 12.2 percent in metropolitan statistical areas.[167] In 1984–1985, 25.9 percent of children and youth under 21 in nonmetropolitan areas were poor, in contrast to 19.3 percent in metropolitan areas. Smaller proportions of minorities lived in nonmetropolitan areas, and both parents were more likely to be present.[168] Twenty-nine percent of nonmetropolitan area women who gave birth in 1985 lived below the poverty level, as compared with 26 percent of metropolitan-area women.[169]

As of 1983, race-specific infant mortality rates were slightly higher in rural areas, as were fetal and postneonatal deaths, but not neonatal deaths. Children under 21 visited physicians less in rural areas: while 21 percent of all metropolitan-area children had not seen a physician within the last year, 25 percent of all rural children and 30 percent of those below the poverty level had not.[170]

Data from the 1980 National Natality Survey and the 1982 National Survey of Family Growth indicated that women who lived in nonmetropolitan areas were slightly less likely to initiate prenatal care in the first trimester than were those who resided in metropolitan areas—75.4 percent vs. 79.0 percent.[171] Analysis of variations in the use of obstetric technologies showed that women in rural areas were less likely than their urban counterparts to receive early prenatal care or to experience the benefits of ultrasound or amniocentesis. Southern rural areas were particularly deprived.[172]

A 1989 review noted that higher rates of poverty and a dearth of employer-based health insurance in rural areas—either because of self-employment or because of the relatively small numbers of large employers—led to reduced access to prenatal care, specialized care for ill newborns, and primary health services for infants. Some rural states compound the problem by making their AFDC programs very restrictive, and by not adopting Medicaid eligibility and service options.[173]

Rural states have traditionally suffered from a shortage of physicians, and as obstetricians and family physicians have reduced or eliminated their obstetric practices, and as the supply of National Health Service Corps clinicians has dwindled, the scarcity has increased. Moreover,

In 1987 the poverty rate for children under six was 27 percent in rural areas, compared with 23 percent across the nation. Rural families have traditionally suffered from a lack of access to physicians, and many rural hospitals have closed.

Infant mortality and injury rates for young children are higher in inner-city areas than in other areas of the country.

many rural hospitals have closed, further reducing the numbers of obstetric and pediatric care sources.[174] A recent study revealed that women who lived in communities with relatively few obstetric providers in relation to the number of births were less likely to deliver in a local community hospital than those in communities with a higher ratio. In addition, women from "high-outflow" communities had a higher proportion of complicated and premature births and remained in the hospital longer.[175]

Children Living in Concentrated Poverty in Inner-city Areas. Homeless children are not the only ones who suffer in America's inner-city areas. In 1988 the poverty rate in central cities was 18.3 percent, compared with 13.1 percent across the nation, 12.2 percent in metropolitan statistical areas, and 8.3 percent in suburban areas. The majority of poor metropolitan residences were in central cities—59.1 percent.[176] Between 1975 and 1987 the number of poor children under six living in areas of concentrated poverty—areas where 20 percent or more of the population are poor—grew from 1.5 million to 2.2 million. America's central cities and suburban areas experienced the most growth in numbers of poor children under six, while those living in rural areas of concentrated poverty decreased.[177]

Newspapers have illustrated the problems of children living in urban areas of concentrated poverty—in Chicago, Detroit, and other cities. The article titles alone tell a story. *The Wall Street Journal* published "Day-to-Day Violence Takes a Terrible Toll on Inner-city Youth,"[178] and *The New York Times* published "What It's Like to Be in Hell."[179]

Wilson has attributed much of inner-city pathology to major changes in the socio-economic composition of these areas. In his book *The Truly Disadvantaged: the Inner City, the Underclass, and Public Policy* he notes:

> In the 1940s, and 1950s, and even into the 1960s, these neighborhoods featured a vertical integration of different income groups as lower-, working-, and middle-class professional black families all resided more or less in the same ghetto neighborhoods. . . . the movement of middle-class black professionals from the inner city, followed in increasing numbers by working-class blacks, has left behind a much higher concentration of the most disadvantaged segments of the black urban population. . . . the exodus of middle- and working-class families from many ghetto neighborhoods removes an important "social buffer" that could deflect the full impact of the kind of prolonged and increasing joblessness that plagued inner-city neighborhoods in the 1970s and early 1980s, joblessness created by uneven economic growth and periodic recessions.[180]

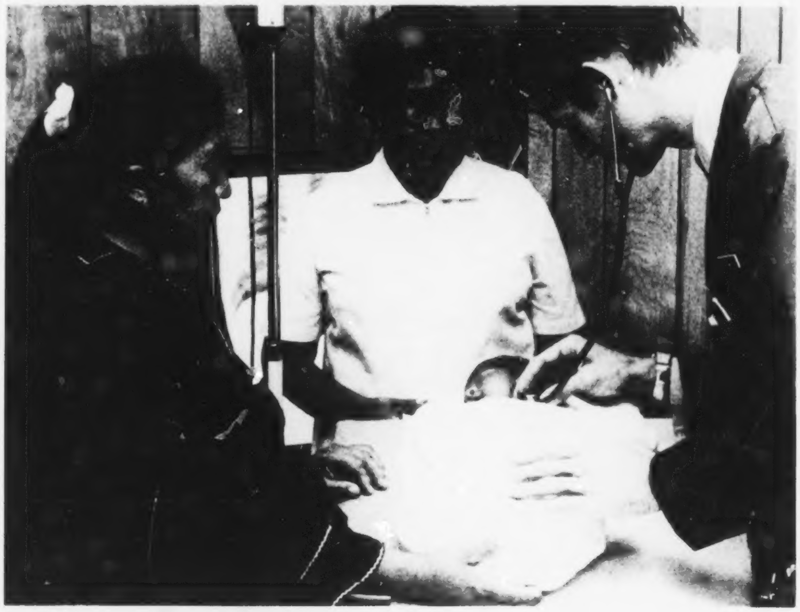
Crime, unemployment, dropping out of school, and teenage pregnancy are higher in inner-city areas than elsewhere, as are the rates of adverse health conditions noted earlier, such as infant mortality and accidents.

Data from the New York City hospitalization study showed that neighborhoods in which over 40 percent of the population lived below the poverty level, such as the South Bronx, had the highest rates of hospitalization of infants and children. Moreover, hospitalization often occurred for reasons that could have been prevented had ambulatory services been available or used. For example, among infants, otitis media, asthma, and injuries and poisonings were more prevalent among those from poorer areas. Among children 1–4, asthma and bronchitis, pneumonia and pleurisy, otitis media and upper respiratory infections, poisonings, arm and leg fractures, and cellulitis all had over three times the discharge rate in the poorest as compared with the richest areas.[181]

Native American Children. The health of Native American children has improved over the last decade, but significant problems remain. The federal government discharges some of its responsibilities to this population through the Indian Health Service, which provides inpatient and ambulatory care services at no charge to over 1.1 million eligible American Indians and Alaska Natives in 33 states. Over 30 urban projects are funded, but most Indian Health Service facilities are on or near reservations. Native Americans, as American citizens, are also eligible for other federal and state health services.[182]

Poverty is high among American Indians and Alaska Natives: in 1980, 28.2 percent lived below the poverty level, compared with 12.4 percent overall in the United States. Median family income and the proportions of high school graduates and adults in the labor force were all lower than overall U.S. rates.[183]

A 1984 analysis of low birthweight among American Indians and Alaska Natives showed that their rates were half those of blacks and were similar to those of whites, despite Native Americans' low educational attainment, high incidence of preterm births, high rates of extramarital births and teenage motherhood, and quantitatively inadequate prenatal care.[184] During the 1984–1986 period, 42 percent of Native American women initiated prenatal care after the first trimester. This is a higher proportion than that of white, black, Hispanic, or Asian women.[185]



The health of Native American children has improved over the last decade, but Native American postneonatal mortality rates from SIDS, pneumonia and influenza, septicemia, and meningitis were higher in 1985 than the overall U.S. rates.

The infant mortality rate for Indians and Alaska Natives was 9.7 percent in 1984–1986, lower than the overall U.S. rate in 1985. The two leading causes of infant mortality were SIDS, for which the Native American rate exceeded the U.S. rate, and congenital anomalies, for which the Native American rate was less than the U.S. average. While the neonatal mortality rate was also less than the overall U.S. rate, the postneonatal rate was 1.4 times the U.S. rate. Postneonatal deaths from SIDS, pneumonia and influenza, septicemia, and meningitis were higher than the overall U.S. rate.[186]

One study questioned the coding of SIDS deaths, noting that some of the deaths might be due to respiratory failure and unexplained suffocation. The researchers also suggested that high levels of poverty and adverse home conditions resulted in postneonatal deaths from respiratory illnesses (including pneumonia), intestinal infections (including gastroenteritis), injuries, and poisonings. Fetal alcohol syndrome and child abuse and neglect may have also contributed to postneonatal mortality. The researchers concluded that

> the roots of postneonatal death among Indians appear to lie partially in the social and economic aspects of Indian living, which extend to impede the provision of adequate nutrition, housing, and general developmental necessities. Furthermore, these unfavorable conditions not only have negative implications for health but also impede the proper use of health services, which offer prevention and treatment that could lessen the incidence of death among 28-day to 1-year-old Indian children.[187]

Native American children have dental caries rates that are higher than those in the general population,[188] and the rates of baby bottle tooth decay among children enrolled in Head Start programs are higher for Native Americans than for others.[189] Death rates from motor vehicle and other accidents have been higher among Indians and Alaska Natives under five years of age than for other, comparable children in the United States. Alcoholism mortality rates per 100,000 women in their reproductive years were appreciably higher than those for all American women.[190]

Other Special Groups. This review of children at elevated health risk because of residential or other special statuses could easily be expanded. Another group for whom the federal government has responsibility, but whose health care needs are not always properly served, are pregnant women and mothers in the armed services and the dependents of military personnel. Despite the availability of free health care, military families in the lower ranks of the services frequently are poor or live close to the poverty line.

Pregnant women in prisons, and the young children of incarcerated parents, are usually poor and at risk for health problems. Undocumented aliens, including pregnant women and young children, may be subject to deportation and thus are reluctant to seek health care. Even legal immigrants face major health problems because of a lack of accessible services, limited English proficiency, unfamiliarity with the U.S. health system, and cultural norms that may make it difficult for them to use the health services that are available.

65

Chapter Five:
The Impact of Poverty on Health

What are the mechanisms by which poverty affects health status? Why do poor children have more, and more severe, health problems than nonpoor children?

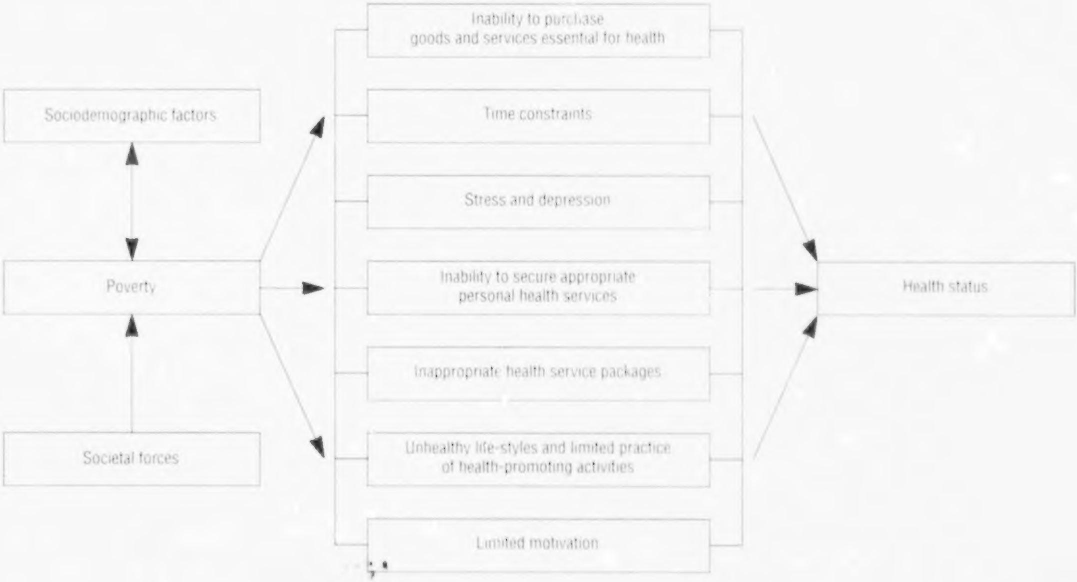
Lack of money or insurance for high quality, personal health services is a traditional answer, and this is certainly a contributing factor. But poor families have other characteristics that impact negatively on their children's health. These include sociodemographic and societal factors that influence health directly or indirectly. Poor families also may have insufficient funds to purchase the goods and services essential for health, including adequate housing and food.

Time constraints and other stresses may lead to feelings of hopelessness and helplessness, and utilization of services may be affected by both financial barriers and problems in provider availability. Health status may also be influenced by inappropriate health service packages, unhealthy life-styles, and limited practice of health-promoting activities. An examination of these factors is essential to developing effective recommendations for improving the health status of poor children. (See Figure 14.)

Sociodemographic Factors Associated with Poverty

Having a low income relative to family size is associated with several sociodemographic factors that may lead to poor health, independent of the receipt of personal health services. These include having less than a high school education, extramarital childbearing, single parenthood, and teenage motherhood. These demographic factors may be a cause of poverty, or a result of its stresses, or both. All often serve as proxies for

Figure 14: Mechanisms by which poverty affects health


Inability to purchase goods and services essential for health
Sociodemographic factors
Time constraints
Stress and depression
Poverty
Inability to secure appropriate personal health services
Health status
Inappropriate health service packages
Societal forces
Unhealthy life-styles and limited practice of health-promoting activities
Limited motivation

poverty. Moreover, these factors are so closely associated that it is unlikely that they act independently or, even if they do, that their independent effect is measurable.

Education. Formal parental education has a positive influence on child health. Mothers with fewer than 12 years of education are less likely than better-educated parents to take action to prevent injuries or poisonings, to receive adequate prenatal care, or to seek appropriate care for their children.

School-based health education may be the reason for this difference. Some classes provide information about the importance of healthy behaviors, the signs and symptoms of illness, the need for medical care, and ways to use the health care system. Evaluations of model school health education programs have shown that they can be effective,[191] but the quality of routine school health education is generally so poor that such instruction may not contribute substantially to health status. A second, stronger possibility is that more years of formal education affects health status in less-tangible ways: that is, by providing broader perspectives on life's problems, encouraging rational thinking and respect for scientific findings, or raising self-esteem. Alternately, the association between education and health simply may be due to education's relationship with higher economic status and other factors that enhance health status. In Canada, however, where the universal, national health insurance program serves to lessen other socioeconomic barriers, a mother's level of education still influences her use of ambulatory medical care.[192]

Marital Status. Children conceived outside marriage are more likely to be low birthweight, possibly because of the absence of social supports for the mother during pregnancy. Such children are also very likely to live for extended periods of time with single parents.

Single-parent Households. Children in homes without two biological parents score lower on many health indicators than those living with both parents, probably because of the lower family incomes of the former and the lack of social support from the absent parent.

Teenage Motherhood. Becoming a mother before the age of 18 has only a small independent effect on the outcome of pregnancy, but it is closely related to failure to graduate from high school, to extramarital births, and to being a single parent.

Extramarital births, single parenthood, and teenage motherhood are highly correlated. Moreover, all of these factors are likely to leave the mother with an inadequate system of social supports, leading to adverse consequences for the child's health.

Societal Forces

Various forms of discrimination disproportionately affect poor families. Prejudicial attitudes based on race, ethnicity, gender, or even poverty make it difficult for parents to secure an adequate education, find employment, obtain housing, and, sometimes, receive medical care for themselves and their children.

Inability to Purchase Goods and Services Essential for Health

Poverty may make it impossible to purchase some of the commodities that are conducive to good health. This has a direct adverse impact on health status and also an indirect one, through increased stress.

67

Poor families have difficulty purchasing the commodities and services conducive to good health: safe housing, nutritious food, drugs, medical equipment, safety devices, and transportation.

Housing. Many areas have too little adequate housing at prices that people on welfare or the working poor can afford. As discussed in Chapter Four, certain health problems are associated with homelessness; but homes that are "inadequate" can also affect health. Low-income families may find affordable shelter only in neighborhoods with physically hazardous surroundings, with elevated lead levels in the buildings or in the soil, or with excessive rates of violence. High rents may force families to share facilities or to squeeze into facilities that are too small. Overcrowding can create high levels of stress and can facilitate transmission of disease. Insufficient housing stock may result in placing poor families in welfare hotels and motels often without cooking facilities and with high rates of deviant behavior.

Food. Food may also be in short supply for poor families. Not only do they face the problem of having too little money to purchase food, but transportation difficulties may force poor families to shop in small neighborhood food stores that charge more than the supermarkets found in more affluent areas.

Transportation. Low income can limit transportation options. Automobiles are expensive to buy and to maintain. Many poor families rely on seldom adequate and often expensive public transportation, which makes shopping for various services and obtaining medical care difficult.

Drugs, Medical Equipment, and Safety Devices. Poor families may scrimp on prescribed medications and not have funds for equipment that would make sick or handicapped infants and children more comfortable, such as humidifiers or wheelchairs. Safety devices such as smoke detectors or stairway guards receive low priority when money is scarce.

Time Constraints

Poor families have little time for such health-promoting behaviors as exercise or recreation. Poor parents may work for one or more employers who do not allow them flexible hours. A busy schedule further limits their access to medical care. Even when an adult in a poor family does not work, competing demands vie for that adult's time, since the family cannot purchase child care, transportation, housekeeping assistance, or other services. Research has shown that the larger the family, the less medical care each child receives, perhaps because of the time factor.[193] For many poor families, the problems of traveling to work, finding food, and caring for other children or adults may take precedence over seeking personal health services—except in emergencies.

Stress and Depression

Clinicians and researchers have noted that stressful life events, including those associated with poverty and chronic illness, are critical factors in the etiology of depression. Low-income mothers with young children may be the group most likely to become depressed.[194] They feel that they cannot help themselves or be helped by others. Their self-esteem is often low, and they are less likely to meet their children's demands for attention and communication.

Inability to Secure Appropriate Personal Health Services

Although poor families are often said to use personal health services inadequately or inappropriately, analyses suggest that they are *unable* to secure appropriate personal health services because of financial barriers and provider-related factors. (See also Chapter Six.)

Many low-income families have no private health insurance, and not all employers cover employees' children. Rural and inner-city youth run the highest risk of no coverage.

Financial Barriers. Nonpoor families pay for their personal health services through private insurance or out of pocket. Most poor families, however, do not have the income to pay directly for any services other than the least expensive. And they usually do not have private insurance. According to the National Health Interview Survey, two-thirds of poor children under six had some type of health insurance in 1986, with fewer than half covered by Medicaid.[195] (See Table 3.)

In some poor families a working member's employer provides private insurance to cover the worker and other family members. But many establishments that employ the poor do not offer health insurance for families or even for employees. Nor do they offer the opportunity to purchase it at group rates.

The proportion of families covered by private health insurance is decreasing, particularly among the poor, and even those with private insurance may have policies that do not cover dependents or that involve cost-sharing, such as through copayments or deductibles, which have a negative effect on utilization. Increasingly, employers are requiring that employees pay part or all of the cost of family and individual heath insurance premiums.[196]

The working poor without private insurance and the nonworking poor rely on Medicaid if they are eligible. Medicaid has reduced financial barriers to medical care and has the potential to do even more. Unfortunately, Medicaid eligibility has traditionally been tied to AFDC eligibility, which varies widely among the states. In an attempt to make more children and pregnant women eligible for Medicaid benefits, the federal government on a step-by-step basis through the 1980s mandated that states cover an increasing proportion of the non-AFDC poor. As of 1990 all states must provide Medicaid coverage to pregnant women and to children up to age six whose incomes fall under 133 percent of poverty. The federal government has also provided states with the option to cover additional groups. As of July 1990, 17 states had taken the option to raise Medicaid coverage for infants and pregnant women to 185 percent of poverty.[197] Many poor families remain uncovered, however, because states have not used this and other options.

Difficulties in determining eligibility and other bureaucratic obstacles further reduce the number of poor families who can pay for health services through Medicaid.[198] A recent survey by COSSMHO, the National Coalition of Hispanic Health and Human Services Organizations, revealed that a third of the Medicaid application sites studied had no special services to help their staff work with Spanish-speaking clients.[199]

Poor families without private insurance or Medicaid must seek personal health services from public or nonprofit community-based providers such as health department clinics, community or migrant health centers, or hospital outpatient departments that are willing to assist them on a sliding-fee basis or without charge. Given the difficulty of finding private physicians willing to accept Medicaid, many Medicaid-eligible families also use such facilities. Some privately insured families prefer these neighborhood-based facilities because they are close to where the families live or work, or because they provide a wide range of social services. Use of these providers should not have an adverse impact on children's health status or on their utilization of personal health services. In fact, as discussed later in this chapter, the services offered in these facilities are frequently more appropriate to poor children's needs than are those in private physicians' offices.

Table 3: Percentage distribution of children under six covered by health insurance, 1986

Category	Any type	Private health coverage (%)	Medicaid insurance (%)	Other (%)	No coverage (%)
All children	83.8	68.8	12.9	3.0	16.2
Boys	83.1	67.6	13.4	2.9	16.9
Girls	84.5	69.9	12.4	3.2	15.5
Income level					
Poor, 1986	66.5	18.5	46.0	4.6	33.5
100%–200% of poverty line	77.1	66.9	7.9	4.3	22.9
200% + of poverty line	94.6	91.3	1.5	2.2	5.4
Race					
White	87.5	77.5	7.8	2.8	12.5
Black	78.6	44.6	32.9	3.9	21.4
Hispanic	70.0	50.5	17.7	2.6	30.0
Other	81.2	61.9	13.5	4.2	18.8
Family composition					
Married couple	85.2	77.6	5.2	2.7	14.8
One or both parents absent	78.3	33.6	43.3	4.6	21.7
Region					
Northeast	92.3	78.1	13.9	1.1	7.7
Midwest	89.1	70.5	17.0	2.9	10.9
South	75.8	62.9	10.5	2.8	24.2
West	83.9	68.4	11.5	5.7	16.1
Location					
Central city	82.3	60.4	20.1	3.1	17.7
Suburban	87.0	76.9	7.7	2.8	13.0
Rural	79.2	63.0	13.9	3.5	20.8

Source: National Center for Children in Poverty. (1990). *Data sourcebook: Five million children: A statistical profile of our poorest young citizens*, p. 52. Based on Newacheck, P.W. (1990). *Improving access to care for expectant mothers and young children.* Paper prepared for the Cornell Health Policy Conference IV, Ithaca, NY.

Pediatricians in private practice are accepting fewer and fewer Medicaid patients, and public facilities are insufficient to meet the health care needs of poor young children.

Problems in Provider Availability. Access problems, another limiting factor, may be due to a lack of providers in a geographic area, providers' unwillingness to accept certain patients, especially those with limited funds or on Medicaid, or cultural factors that make some providers unacceptable. The absence of an accepting or acceptable provider may make it difficult or impossible for women to receive family planning services or prenatal care, or to obtain a legal abortion; or for infants and children to receive the primary and specialized care they need.

Many private providers have moved away from inner-city areas, which have high concentrations of poor families, to the suburbs. Unless poor families have cars or have friends or relatives willing to drive them, even providers that offer free services or accept Medicaid may not be available. Rural families often must travel long distances to obtain primary or specialized services.[200]

Access difficulties faced by rural families, especially those who are poor, include declining numbers of obstetricians and family practitioners practicing obstetrics; closing of entire hospitals or of obstetric units; reductions in the National Health Service Corps; inadequate state-supported maternal and child health services; and inadequate numbers of and insufficient funding of community and migrant health centers.[201]

Physicians in private practice often do not accept Medicaid patients for a variety of reasons.[202] The reimbursement level is probably the most important factor; it is almost always less than the provider receives from patients who pay out of pocket or who have private insurance. Many physicians also report that they are reluctant to accept Medicaid patients because of complex billing procedures and the long wait for payment. The possibility of being sued for malpractice appears to be further reducing the pool of physicians willing to accept Medicaid-eligible pregnant women. (See Figure 15.)

Provider availability problems are not limited to the private sector. The early 1980s saw the closing of some community health centers, migrant health centers, and health department clinics; the curtailment of services in many such facilities; and the accumulation of waiting lists in others. Financial constraints have had a devastating impact on model health department programs, and cutbacks in the National Health Service Corps have reduced provider availability as well.[203] Fortunately, some of these trends have been reversed, and the federal government and a number of states and counties are increasing funds available for public and nonprofit outpatient facilities.

Inpatient services remain a problem in geographic areas where Medicaid cutbacks and the "dumping" of patients from private and voluntary hospitals have affected public hospitals adversely. The purchase of public and nonprofit hospitals by for-profit chains has also reduced possible sources of care for the poor.[204]

A 1986 survey of Title V—the Maternal and Child Health Services Block Grant program of the Social Security Act—found that many of the programs were meeting only a small portion of the needs in their states. Pregnant women often could seek care only from designated programs or if they were at high risk. The agencies reported denials of admission to women not yet in "active" labor. Programs for children were generally not comprehensive, but were limited to well-child care.[205]

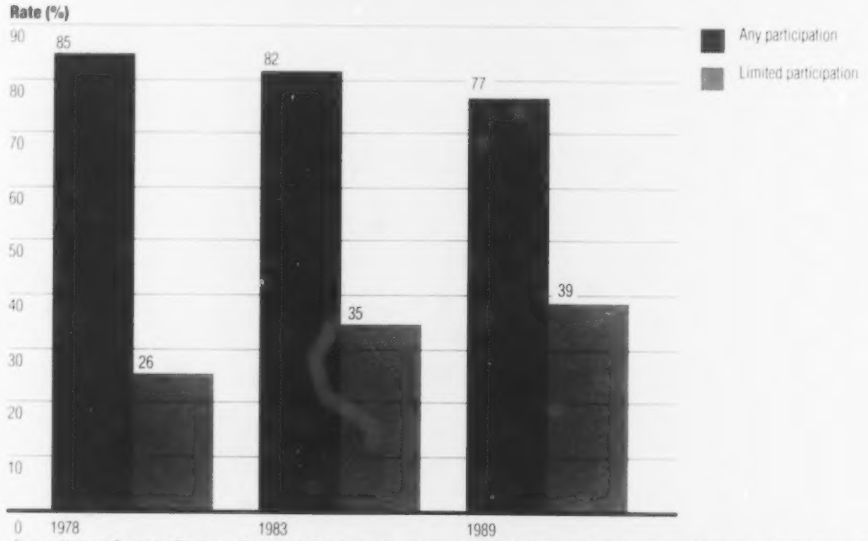
The costs of liability insurance concern health departments and community health centers as much as private providers. These facilities report that Medicaid reimbursements have not risen enough to cover additional insurance costs, and the shortfall has had detrimental effects on the number and range of services provided.

Inappropriate Health Service Packages

Even when a poor family can find a provider, the services available may not be appropriate to its needs. The types of social problems associated with and possibly causing health problems in poor children require a range of services and personnel most private providers do not offer. These include transportation, child care, translators, nutritionists, welfare specialists, and caseworkers. Although practitioners in many communities can refer patients for services they do not provide, poor families may find it difficult to make appointments and travel from one place to another.

In some areas, community health centers, health departments, and hospital ambulatory care units provide the necessary range of services, but these facilities operate under continual financial pressure. Costs are higher than reimbursements, and appropriations do not make up for inflation or for rising patient loads. As a result, physical surroundings deteriorate, waiting lists develop, and the "nonessential" services needed by poor families may be eliminated. Often the result is health care that is not commensurate with the scope of the problems that poor families bring to the facility.

Figure 15: Medicaid participation rates of pediatricians, 1978, 1983, and 1989



Source: National Center for Children in Poverty. (1990). *Five million children: A statistical profile of our poorest young citizens.* p. 68. New York, NY. Based on Yudkowsky, B.K., Cartland, J.D.C., and Flint, S.S. (1990). Pediatrician participation in Medicaid: 1978 to 1989. *Pediatrics, 85*(4), pp. 567–577.

BEST COPY AVAILABLE

Alternately, because of financial or time constraints, the absence of primary care facilities, or inadequate knowledge of the health system, poor families may seek care in settings that are not designed to provide the broad-based services needed. For example, poor parents often take their children to hospital emergency rooms for nonemergency problems. Similarly, while Medicaid "mills" may be conveniently located in low-income neighborhoods and may encourage visits from Medicaid-eligible families, their physicians tend to devote little time to individual patients. They also have been reported to overprescribe.[206]

Unhealthy Life-styles and Limited Practice of Health-promoting Activities

Poor families often have life-styles not conducive to the health of infants and young children. They engage in fewer health-promoting activities than do more affluent families. Poor women are less likely to use contraceptives; smoking and drug addiction appear to be more prevalent among the poor; and diets are less nutritious. Poor families use seat belts less frequently than others, and they are less likely to install smoke detectors. Possible causes include inadequate knowledge of the importance of preventive behaviors, insufficient funds, preoccupation with immediate survival issues, and feelings of powerlessness and lack of control.

Motivation

Poor families are often accused of being unmotivated to seek personal health services, although the problem may be lack of information, fear, absence of available or acceptable services, or an array of different priorities and perspectives regarding the use of time and money. There is little evidence that poor families intentionally do not seek care. When insurance status and other financial factors are controlled and services are accessible, differences between poor and nonpoor families' utilization of health services almost completely disappear.[207]

Education about the need for health services, especially preventive measures, is not equally distributed across populations. People with more years of formal education and higher incomes are better informed than those with less. The need for prenatal care, or periodic child health examinations, independent of immunizations, is not recognized by many families. Health education clearly is needed through media channels that have the eye, the ear, and the respect of poor families.

Unpleasant experiences with the health care system also influence motivation. Women who have endured unnecessary pain or who have been treated discourteously may be reluctant to return to the health system available to them or to expose their children to it.

Chapter Six: The Personal Health Care Patterns of Families in Poverty

The health problems experienced by poor children are to a large extent a consequence of their families' poverty and related factors. Nevertheless, personal health care can play an important role in preventing and ameliorating many of their health problems. Personal health care as defined in this chapter includes both services that clinicians provide to individuals and the health-promoting activities of individuals. These are in contrast to communitywide public health measures, such as fluoridation of the water supply.

For families to receive the benefits of personal health services, the services must be available, be used appropriately, include components suitable to the needs of individuals and families, and be of high quality. Research suggests that these criteria are not always met for the poor.

Poor women use family planning and pregnancy-related services differently from nonpoor women, and poor families use medical, dental, and other health services for their infants and children in ways that differ from those of nonpoor families. These patterns of usage, described in this chapter, often do not meet recommended standards of care or national objectives, and they may not be as conducive to good health as the patterns of more affluent families. Poor families also use different sources of care. These poor-nonpoor differences in patterns of care may be the result of problems with financing and the availability of services, limited knowledge of the need for care, lack of information on the sources of suitable care, or conflicts with other demands on their time.

Family Planning Services

Unwanted children are at higher risk for a variety of conditions than are children who were wanted at the time of conception or birth. Planned births are more likely to reflect healthy interconceptional intervals, and women are more likely to seek early prenatal care for wanted and planned pregnancies.[208] Wanted and planned children are also at lower risk for abuse and neglect.[209] Family planning services are thus essential to assuring a healthy start in life for poor children, particularly among families who do not have the economic or emotional resources to manage an unwanted or unplanned birth.

Standards and Objectives for Family Planning Services. The Public Health Service's 1990 publication *Healthy People 2000: National Health Promotion and Disease Prevention Objectives* outlines several objectives concerning responsible sexual behavior. These include reducing pregnancies among teenagers through delay of initiation of sexual activity, abstinence, and contraceptive use.[210]

Unplanned Pregnancies and Births. The 1988 National Survey of Family Growth (NSFG) revealed that 39.9 percent of the births in the 3–4 years prior to the survey were unintended. The proportion of births that were unintended, including those both unwanted and mistimed, declined as income rose. For those families living below the federal poverty line, the proportion of unintended births was 58.6 percent; for those living at 100–199 percent of poverty, it was 42.7 percent; for those with incomes equal to or over 200 percent of poverty, the proportion was 31.8 percent. Within the lowest income group, 24.8 percent of the births were defined as unwanted (that is, no children or no more children were wanted at any time), and 33.8 percent were defined as mistimed (that is, they occurred earlier than desired). Within the highest income group, similar proportions were 8.0 percent and 23.8 percent, respectively.[211]

Family planning services are essential to assuring a healthy start in life for poor children. Unwanted children are at higher risk for many problems.

Contraceptive Use. The 1988 NSFG also showed that contraceptive use rose with income. Among women at risk of unintended pregnancy, 14.7 percent of those living below 200 percent of poverty were using no contraceptive method, compared with 7.7 percent of those living above that level. Female sterilization was more common among those living below 200 percent of poverty. Reversible contraceptive methods and male sterilization were more common in the higher-income group.[212]

Family Planning Visits. The 1988 NSFG found that the proportion of women who had had one or more family planning visits in the 12 months prior to the interview was not significantly different between women with incomes below 150 percent of poverty (36.2 percent) and those with incomes above that level (34.0 percent).[213]

Source of Family Planning Care. The 1988 NSFG revealed that the proportion of women using a clinic rather than a private practitioner for their most recent family planning visit was higher for those with incomes below 150 percent of poverty (60.2 percent) than for those with incomes above (27.4 percent). Teenagers were more likely to use clinics than were older women.[214]

Problems with Family Planning Provider Availability. Studies of family planning services indicate problems with provider availability. A 1983 study estimated that 417,000 women with family incomes below 150 percent of poverty who were at risk of an unintended pregnancy lived in counties that had no family planning clinics. There were no clinics in 8 percent of metropolitan counties (with 117,000 low-income women at risk) and 29 percent of nonmetropolitan counties (with 300,000 such women).[215] A 1983 Alan Guttmacher Institute (AGI) survey of private physicians providing reproductive health care services found that only 56 percent of those physicians who offered contraception accepted Medicaid, and only 17 percent reduced their fees for low-income women.[216]

Barriers to care were the subject of a 1986 survey covering sexually active women aged 18–19 and those aged 20–35 with family incomes lower than 200 percent of poverty living in four urban communities in the Northeast, Midwest and West. Negative attitudes toward contraceptives were important determinants of contraceptive nonuse; but among women who had decided to use a method, their perceptions of cost, convenience, and quality-of-care factors often prevented them from seeking the provider of choice.[217]

Pregnancy-related Services

The health of children during the first five years of life is probably affected more by their health status at birth than by any other single factor. The high rates of infant and child death and disability due to congenital defects, labor and delivery problems, preterm birth, and intrauterine growth retardation demonstrate the importance of maternal health before and during pregnancy. A wide range of services is essential for the mother and the developing fetus: preconception care, care during pregnancy, labor and delivery in a facility appropriate to the mother's and infant's risk status, and postpartum care.

Measurement and Indexes of Prenatal Care. Prenatal care must be adequate in amount, content, and quality in order to have a maximum effect. Most research, however, focuses exclusively on whether women receive adequate amounts of prenatal care, measured by the month in which care began, the number of visits made during pregnancy, or an index combining these factors. Since a preterm birth reduces the number of visits a woman can make—and reduces them substantially, because she is no longer pregnant during what would be the later stages of the pregnancy, when visits should be most frequent—Kessner developed an index of prenatal care "adequacy" that used the trimester in which care began and the number of visits, adjusted for gestational age at delivery.[218]

The Kessner Index is an improvement over month of initiation or number of visits only, but problems in measurement remain because of omissions and inaccuracies on birth certificates and the inability of the index to compensate for the additional visits needed by women at biological or social risk.

Standards and Objectives of Prenatal Care. Several guidelines suggest the health services needed by women before, during, and after pregnancy, and during labor and delivery. *Standards for Obstetric-Gynecologic Services*, published by the American College of Obstetricians and Gynecologists (ACOG),[219] and *Guidelines for Perinatal Care*, published by the American Academy of Pediatrics (AAP) and ACOG,[220] are the generally accepted American guidelines, and most other sets of standards refer to them. The Public Health Service's Expert Panel on the Content of Prenatal Care published its report in 1989—*Caring for Our Future: The Content of Prenatal Care*—which provided a new perspective on prenatal care standards.[221] The Expert Panel's objectives are broader than those of ACOG or AAP, and they place more emphasis on preconception and first-trimester care and on the psychosocial aspects of care. All guidelines urge that prenatal care begin in the first trimester of pregnancy. In addition, ACOG recommends a prenatal visit every four weeks for the first 28 weeks of pregnancy, every 2–3 weeks until 36 weeks of gestation, and weekly visits thereafter. For the woman who delivers between the 38th and 40th weeks, this means 10 or more visits.[222] The Expert Panel recommends fewer visits during pregnancy, particularly for women not experiencing a first pregnancy, and a slightly different schedule of visits.[223]

All the sources listed have established their visit standards primarily for women who are at no apparent risk. Women at biological or social risk, including many poor women, require more extensive services than those described in these guidelines.

Healthy People 2000 describes several objectives in the area of prenatal care. The first is to increase to at least 90 percent the proportion of all pregnant women who receive prenatal care in the first trimester of pregnancy.[224] (Unfortunately, the proportion of mothers receiving first-trimester care remained stable at 76 percent from 1979 through 1988, except in 1984, when it reached 77 percent. Similarly, the proportion of mothers initiating care in the third trimester or receiving no care at all has remained at 6 percent since 1983.[225]) Other objectives include educating pregnant women about nutrition, substance abuse, and other behaviors; screening for fetal abnormalities; and delivery in facilities appropriate to level of risk.[226]

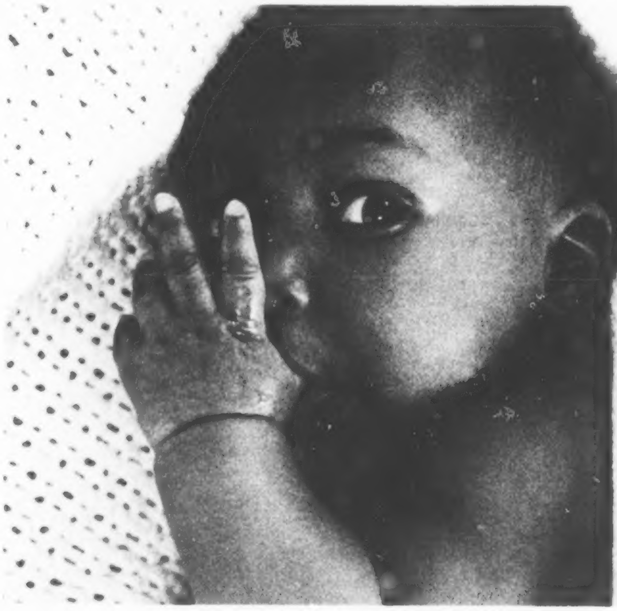
Prenatal Care Utilization. The tendency of poor women to underutilize pregnancy-related services may have adverse consequences for their children. Analyses of 1980 vital statistics, the 1980 National Natality Survey, and the 1982

BEST COPY AVAILABLE

NSFG indicated that pregnant women with little education, who were unmarried, who were under 20, and who were living below the federal poverty level were more likely to initiate prenatal care in the third trimester or to receive no care.[227]

Another analysis of the 1982 NSFG found that among women who had a live birth between 1979 and 1982, 50.1 percent of those living under 150 percent of poverty had initiated prenatal care before the third month of pregnancy, compared with 74.7 percent of those living above that level. Only 45.9 percent of women who received Medicaid, compared with 69.2 percent of those who did not, started care that early.[228]

In 1986–1987, the General Accounting Office (GAO) interviewed Medicaid recipients and uninsured women who had delivered recently in 32 selected communities representing a mix of large metropolitan, medium-size urban, and rural areas. Of this sample, 63 percent of the women had obtained insufficient prenatal care, a combination of the inadequate and intermediate categories in the Kessner Index (explained on page 61). Those receiving insufficient care were likely to be uninsured, live in the largest urban areas, be teenagers or over 35, be Hispanic or black, and have an eighth-grade education or less. The results of the interview study were supplemented by a mail survey of providers who cared for privately insured women. Among women without medical complications, 81 percent of the privately insured, 36 percent of Medicaid recipients, and 32 percent of the uninsured had received adequate care. Most Medicaid and uninsured women had started prenatal care too late or had not made the recommended number of visits.



A child's health status may depend on a healthy start in life. Many pregnant women, particularly those who are poor, are not aware of the importance of early and continued prenatal care to a healthy, full-term birth.

Lack of money is frequently the reason why low-income women obtain insufficient prenatal care. Even Medicaid-enrolled women have difficulty finding providers or paying small service charges.

Not having enough money was the most frequently cited reason for insufficient care in the GAO survey. Although money was less of a problem among Medicaid recipients than among those with no insurance, some Medicaid-enrolled women reported being either unable to find a clinician who would care for them or too poor to pay for visits despite enrollment. Those who tried to enroll in Medicaid reported that one of two factors kept them from seeking care earlier or more often: not meeting eligibility requirements or the length of time it took to obtain notification of eligibility.[229]

Among a group of low-income, primarily black women in a Detroit hospital, the amount of insurance was the best predictor of adequate prenatal care as measured by a care initiation/frequency index. Other variables significantly associated with care were the woman's attitudes toward pregnancy and toward health professionals, the month the pregnancy was suspected, and her perception of the importance of prenatal care.[230]

Poor black and Hispanic women in a New York City hospital most frequently cited the following motivational barriers to prenatal care: "time and energy needed to deal with other problems" and "feeling of depression and not being up to going for prenatal care." The variables that best predicted late or no care, however, were "need to deal with other problems," the cost of care, having no health insurance, being a substance abuser during pregnancy, and holding negative attitudes toward prenatal care.[231]

Source of Prenatal Care. The source of prenatal care varies by poverty status and related factors. According to the 1982 NSFG, low-income women seek prenatal care in clinics more than higher-income women. Among women who had a live birth between 1979 and 1982 and who were living below 150 percent of poverty, 57.0 percent had seen a private physician, 14.7 percent had attended a hospital clinic, and 28.3 percent had gone to another type of clinic (community health center, health department, and others) for their first prenatal visit. Comparable proportions for those with family incomes above this level were 84.5 percent for private physicians, 6.0 percent for hospital clinics, and 9.5 percent for other clinics.[232]

Prenatal Care Provider Availability. Pregnant women report that problems in finding a provider are significant reasons for their obtaining quantitatively inadequate or no prenatal care.[233] The Alan Guttmacher Institute's survey of prenatal care availability revealed major differences in provider availability among counties, states, and regions, particularly in relation to those publicly funded or not-for-profit facilities likely to serve poor women.

AGI estimated that 5,388 hospital and nonhospital clinic sites provided clinical prenatal care in 1987–1989. Of these, 42.8 percent were local health departments or other agency sites (such as community action groups, family planning clinics, or visiting nurse associations) funded by the Maternal and Child Health Services Block Grant (MCHSBG) program; 26.4 percent were community or migrant health centers; and 30.8 percent were hospitals. But only 43.0 percent of the 3,073 counties in the United States had a local health department or state health department site; only 25.0 percent had a hospital clinic; 24.1 percent had a community or migrant health center clinic; and 7.8 percent had another MCHSBG-funded site. In contrast, 48.0 percent of counties were found to have at least one office-based obstetrician-gynecologist, and 93.1 percent had at least one general/family practitioner. Each year, about 215,000 births, or 6 percent of the

Preconception and prenatal genetic screening are essential to the birth of healthy infants. Only half of the private physicians who offer genetic screening accept Medicaid patients.

total number of U.S. births, occur in the 799 counties with no identified clinic provider (26 percent of counties). Approximately 110,000 women giving birth, or 3 percent, live in counties with neither a clinic providing prenatal care nor an office-based obstetrician-gynecologist.[234]

Reluctance to accept Medicaid patients and the fear of liability suits have reduced the number of private-sector providers available to poor, pregnant women. An ACOG survey revealed that 63 percent of obstetricians providing prenatal care accepted some Medicaid patients during 1986, and for approximately a third of these physicians, Medicaid deliveries represented a fifth or more of their practice.[235] A 1983 AGI survey found that 56 percent of physicians providing reproductive health services accepted Medicaid for obstetric care.[236]

The Institute of Medicine's 1989 publication *Medical Professional Liability and the Delivery of Obstetrical Care* stated: "The frequency and severity of claims against obstetricians is compromising the delivery of obstetrical services in this country; that effect, in turn, is reducing access to obstetrical services for certain groups of women."[237] Some physicians believe that Medicaid women are more likely than others to initiate malpractice suits, although a 1988 hospital survey of obstetric claim frequency did not support this view. While Medicaid women were overrepresented among the litigants in the survey, the results did not reach statistical significance, and the data were not adjusted for risk status.[238]

As noted in the previous chapter, problems in provider availability are particularly acute in rural areas. An entire 1989 issue of *The Journal of Rural Health* was devoted to perinatal care in rural America, with articles stressing the problems caused by lack of provider availability, the impact of liability issues, and the closing of rural hospital obstetric units. The report also described programs that have been designed to ameliorate the problems.[239]

Screening and Counseling. Preconception and prenatal screening through ultrasonography, amniocentesis, maternal alphafetoprotein testing and other procedures, and genetic counseling as well, are essential to the birth of healthy infants. The 1983 AGI survey of private physicians providing reproductive health care services found that only 50 percent of those offering prenatal genetic screening accepted Medicaid, and only 10 percent reduced their fees for low-income women.[240]

Legal Abortion. Although induced abortions are legal in the United States, in 1990 only 13 states used their funds to provide medically necessary abortions for low-income residents. A 1989 AGI survey reported a continuing decline in the number of abortion providers: from 2,908 in 1982 to 2,618 in 1985, to 2,582 in 1988. Eighty-three percent of counties had no abortion provider, and 31 percent of all women of reproductive age lived in those counties. Only 8 percent of counties had a large-scale abortion facility, conducting 400 or more abortions per year, and 58 percent of all women of reproductive age lived in those counties. Services were more available in metropolitan counties. Nationally, 6 percent of all women obtaining abortions in 1985 went out of state, but in 10 states, over 20 percent of women went out of state, at least some because of their own state's availability/accessibility problems.[241]

The reason most often given by women having abortions at 16 weeks' gestation or later is "needed time to raise money," followed by "couldn't get abortion at first provider contact" and "problems traveling to provider."[242]

Health Services for All Children

In its 1981 report *Better Health for Our Children: A National Strategy*, the Select Panel for the Promotion of Child Health described all economic data available in the late 1970s and noted, "While national data show that differentials between 'poor' and 'nonpoor' children in use of ambulatory care have decreased, they have by no means been eliminated."[243]

Child Health Standards and Objectives. The standard guide for well-child care is the American Academy of Pediatrics 1988 *Guidelines for Health Supervision.*[244] The standards established for programs such as the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program reflect these guidelines. Although some child health professionals doubt the value of frequent visits for the average well child after immunization has been completed, all recognize that those infants and children who are at elevated risk for health problems because of economic status or social handicaps do need intensive care. "Innovative, intensive, multidisciplinary approaches" may include care in these families' homes by nurses or other trained personnel.[245]

Healthy People 2000 states several child health objectives. One is to increase to at least 90 percent the proportion of infants who receive primary care services, as recommended by the U.S. Preventive Services Task Force. Another is to have all comprehensive health insurance policies cover immunizations. In addition, 95 percent of infants should receive efficient and effective screening tests for genetic disorders and handicapping conditions.[246]

Visits to Physicians. The 1980 National Medical Care Utilization and Expenditure Survey (NMCUES) revealed that children under 18 in families below 150 percent of poverty were less likely than children in higher-income families to have visited a physician at all, and the poorer children were more likely than nonpoor children to have had repeated visits. The average per-child number of visits was 2.7 for poor children and 3.3 for nonpoor children.[247] Low-income children who had Medicaid or private insurance were more likely than the uninsured to have made one or more visits, even when their health status was controlled.[248]

The 1981 National Health Interview Survey (NHIS) Child Health Supplement found that the average number of visits per year to a physician varied little by family income until adjusted for health status, bed days, or limitation in activities. For children in fair or poor health, the number of visits for low-income children was 9.6; for high-income children, it was 12.4. Similarly, for children with one or more bed days, the number of visits for low-income children was 22.6; for high-income children, it was 29.1. For children with activity limitations, low-income children averaged 8.1 visits, and high-income children averaged 9.9.[249] On a subset of conditions from the same data set, physician contacts per 100 bed days were fewer among low-income than among moderate- or high-income families for all conditions except dermatologic.[250]

The 1986 Robert Wood Johnson Foundation health care access survey found that 37 percent of children 1–5 years old in families below the poverty line had not visited a physician within the last year, compared with 17 percent of those families living between 100 and 150 percent of poverty, and 16 percent of those living above 150 percent. Only 16 percent of the children covered by private insurance had not visited a physician, compared with 40 percent of those covered by Medicaid and 53 percent of the uninsured.[251]

Uninsured low-income families will continue to use hospital emergency rooms for primary health care services unless insurance or alternative sites are provided.

Independent of health status, insurance, gender, and urban/rural residence, children living under 150 percent of poverty were *not* significantly more likely than children above that level to have *not* visited a physician within the past year; but children of color were 3.6 times as likely as whites to have not visited a physician. Again controlling for gender, health status, ethnicity, and residence, among those children living in families below 150 percent of poverty, the uninsured were 3.4 times as likely as those with private insurance to have *not* visited a physician, and children covered by Medicaid were 2.0 times as likely as those with private insurance to have not visited a physician.[252]

The more recent NHIS child health supplement, the National Health Interview Survey on Child Health (NHIS-CH), found that 87.4 percent of infants from families with incomes less than $10,000 in 1988 had visited a physician for routine health care, compared with 97.2 percent of infants whose families had incomes of $40,000 or more. In the 1–4 age group, the proportions were 78.9 percent and 85.8 percent, and in the 5–7 group, 65.6 percent and 70.0 percent. Health insurance also had a positive effect on physician visits. Having a *regular* source of routine health care was associated with family income; over 80 percent in the birth to seven age group with incomes under $10,000, and over 90 percent in the same age group with incomes over $40,000, had a regular source of care.[253]

In 1987 among children under five reported to be in poor health, those living above the poverty level were two and a half times more likely to have seen a physician than those living below poverty. While physician contacts varied directly with income, hospital days varied inversely.[254] This may have been because poor families wait longer than nonpoor ones to seek care and therefore are admitted to the hospital with more serious problems.

An analysis of 1982–1986 NHIS data revealed that children under six living below the poverty level made significantly fewer physician visits than their nonpoor peers. The difference was most pronounced for those under age one. Poor children aged 1–5 spent significantly more days in bed, however.[255]

Source of Medical Care. The 1980 NMCUES examined the usual source of medical care among children under six. Urban poor children were considerably more likely to have no usual source of care than were the urban nonpoor. Both urban and nonurban poor children were less likely to have a physician's office as their usual source and more likely to seek care at a hospital clinic, emergency room, or another site.[256]

A 1984 study in New York City found that uninsured "self-pay" families were more likely than those with Medicaid to take their children to an emergency room for nonurgent care, including general medical examinations, medical and surgical aftercare, and chronic conditions such as dermatitis and rhinitis. The author noted, "Concern about inappropriate use and overutilization of ERs may be best addressed by dealing with the problems that uninsured patients have in obtaining access to health care services. Without adequate insurance coverage or the provision of alternative sites for ambulatory care, uninsured children will continue to visit the ER for their primary care needs."[257]

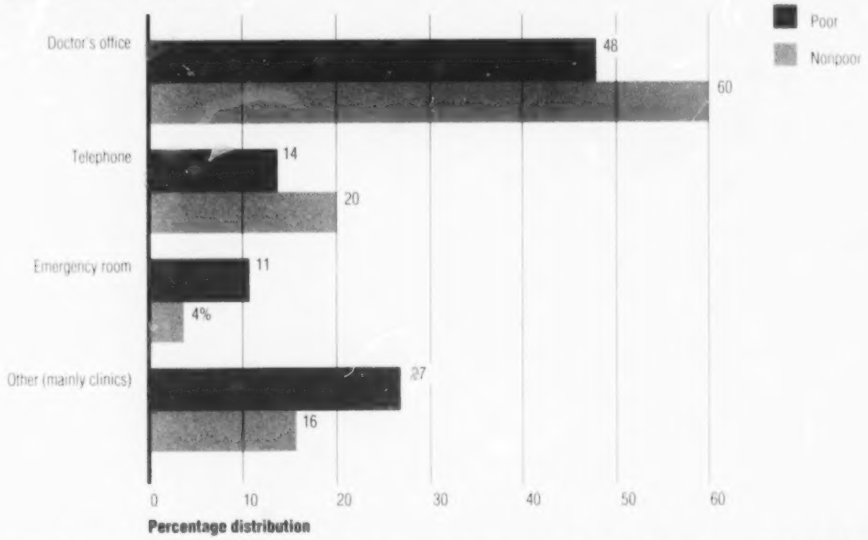
NHIS data for 1987 indicated that families of children under five living below the poverty level were more likely to contact physicians at a hospital or another site, while those above the poverty level made contact in physicians' offices and by telephone.[258] (See Figure 16.)

According to the 1988 NHIS-CH, among families with incomes of less than $10,000 and with a regular source of care, 35.9 percent of infants, 39.5 percent of children 1–4, and 34.9 percent of those 5–7 used a clinic (hospital outpatient department, emergency room, or another type of clinic or health center) rather than a private physician or a health maintenance organization; by comparison, the proportions for those with incomes above $40,000 were 4.2, 6.6, and 4.4 percent.[259]

Cost-sharing. Cost-sharing can have a negative effect on children's health services utilization. The 1974–1982 multisite Rand Health Insurance Experiment found that outpatient and total expenditures per child, hospitalization rates (for younger children only), the likelihood of having at least one office visit per year, and the average number of outpatient visits per year all decreased as the family's portion of cost-sharing increased.[260]

The main effect of cost-sharing was the reduction of outpatient care. Cost-sharing reduced a family's likelihood of seeking treatment for their children, although it did not affect the amount of treatment a child received after an initial visit. When families sought care, the care was likely to be given by a primary care provider other than a pediatrician. Children in cost-sharing plans received significantly less treatment for acute and chronic conditions and received less well-child care.[261] Cost-sharing was also negatively associated with immunizations among children under six, but even under the free plan many infants were not immunized during the appropriate period, and a few children did not receive well-child care. The

Figure 16: Percentage distribution of medical consultations for poor and nonpoor children under five by site, 1987



Source: National Center for Children in Poverty. (1990). *Five million children: A statistical profile of our poorest young citizens.* p. 63. New York, NY. Prepared by Child Trends, Inc., based on unpublished tabulations from the 1987 National Health Interview Survey. National Center for Health Statistics, Hyattsville, MD.

Immunization rates among preschool children are much too low to protect this vulnerable group of infants and toddlers.

authors were uncertain whether the problem lay with the providers or the patients.[262]

The Group Health Cooperative of Puget Sound, a health maintenance organization, found that a five-dollar copayment for all visits to physicians and other clinicians decreased the rate of physical examinations among 1–15-year-olds, but had no effect on immunization rates among 1–2-year-olds, and had a nonsignificant effect on diphtheria-pertussis-tetanus (DPT) immunizations among five-year-olds.[263]

Immunization. Immunization status is another excellent indicator of a family's use of personal health services for its children. *Healthy People 2000* includes among its objectives the reduction to zero of indigenous cases of certain vaccine-preventable diseases: diphtheria, tetanus, measles, polio, rubella, and congenital rubella. For mumps the goal is a reduction to 500 cases; for pertussis to fewer than 1,000 cases in children under six. Immunization levels are to be increased so that at least 90 percent of children under age two have completed the basic immunization series; for children in licensed day care facilities the immunization level should be 95 percent. In addition to these objectives, all comprehensive health insurance policies should cover immunization for children and adults.[264]

The data presented in Chapter Three show how the number of measles cases increased in both 1989 and 1990, suggesting that immunization rates, particularly among preschoolers, are much too low to protect this vulnerable population. Between 1983 and 1985, overall rates of vaccination of children 1–4 remained stable or declined. In 1985, 81.7 percent of children under two had been vaccinated against measles, 77.3 percent against rubella, 78.9 percent against mumps, 76.7 percent against polio, and 85.8 percent against DPT. Immunization rates for measles, rubella, polio, and DPT declined for children 1–4 between 1976 and 1985. (See Figure 17.) Since immunization is usually required for school entrance, however, over 97 percent of new entrants into kindergarten and first grade were were found to be immunized in 1988–1989.[265]

Although data are often not available by economic indicators, there are indications that poor children are the least likely to be immunized. The lowest rates of vaccinations of children 1–4 in 1985 were in central cities of metropolitan statistical areas; rates were lower for children of color than for whites.[266]

The Johnson Foundation survey found that 9 percent of 1–5-year-olds living below 150 percent of poverty did not have up-to-date immunizations, compared with 6 percent of those living above the poverty line. Only 6 percent with private insurance did not have up-to-date immunizations, compared with 19 percent of the uninsured. Independent of health status, insurance, gender, and urban/rural residence, children under 150 percent of poverty were not significantly more likely than children above that level to be inadequately immunized, but children of color were 2.7 times as likely as whites.[267]

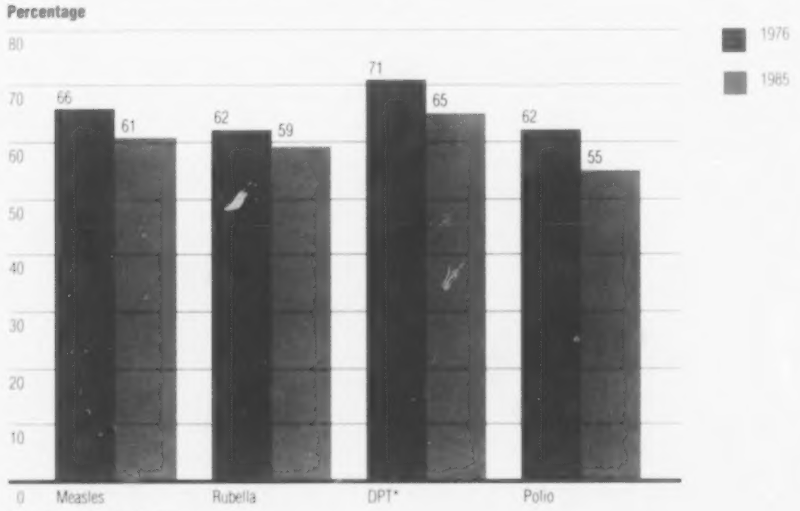
Services for Children with Special Health Care Needs

An analysis of 1981 NHIS data found that low-income children with activity-limiting chronic conditions made 18 percent fewer physician visits than similar activity-limited children from high-income families. Medicaid coverage increased the average number of visits for those in fair or poor health or with activity limitation.[268] A 1978–1979 study of chronically ill children 3–18 years of age in Cleveland, which controlled for the severity of illness, reported that black children annually made about three fewer physician visits per year than did whites, were 13 percent less likely to be hospitalized, and used approximately 50 fewer services. Income was significantly related to physical therapy use: for each $1,000 increase in family income, a disabled child made nearly one extra visit for physical therapy each year.[269]

Unhealthy Life-styles and Limited Practice of Health-promoting Activities. Poor families appear more likely than nonpoor ones to have unhealthy life-styles, and they demonstrate less participation than others in activities that might improve health and reduce the need for medical care. Lower-income adults are more likely than higher-income adults to be 30 percent or more above desirable weight, and they are less likely to consider themselves more active than other persons of their age.[270] Three specific activities that have negative effects on infant and child health—maternal smoking, excess alcohol consumption, and illegal drug use—and their association with poverty were reviewed in Chapter Four.

Earlier in this chapter it was noted that the rates of unintended pregnancies were higher among the poor, as were the proportions of individuals using no contraceptive method. This is a particular problem among adolescents. The 1988 NSFG revealed that 42.2 percent of sexually active 15–19-year-old women living below 200 percent of poverty used no method at first intercourse, compared with 27.4 percent of those living at or above 200 percent of poverty.[271]

Figure 17: Completed vaccinations of children aged 1–4, 1976 and 1985



*Diphtheria-pertussis-tetanus

Source: U.S. Department of Health and Human Services. (1989). *Health, United States, 1988*, p. 148. National Center for Health Statistics, based on the Centers for Disease Control U.S. Immunization Survey. Washington, DC.

BEST COPY AVAILABLE

Injury and Poisoning Prevention. The 1985 NHIS Health Promotion and Disease Prevention survey revealed major income differences in the proportion of families who brought their new infant home from the hospital in a car seat and in the proportion of children under four who were buckled into a car safety seat or seat belt all or most of the time. Among households with a child under nine, high-income families were four times as likely as low-income ones to report having ipecac syrup for poison control in the household. Higher-income households more often had the telephone number of a poison control center in their area.[272] The proportion of individuals aged 18 or older who had at least one working smoke detector at home was directly related to income. Similar differences were found by education and employment status.[273] (See Table 4.)

Visits to Dentists. *Healthy People 2000* lists one general dental service objective: to increase to at least 90 percent the proportion of children entering school programs for the first time (e.g., Head Start, prekindergarten, or first grade) who have received an oral health screening, referral, and follow-up for necessary diagnostic, preventive, and treatment services.[274]

Unfortunately, few poor preschoolers meet these standards, since dental visits are related to economic status. The 1986 NHIS showed that among children 2–4 years of age, 26.9 percent in families with incomes below $10,000 had visited a dental office at least once in the past year, compared with 43.0 percent in families with incomes of $35,000 and above. (See Figure 18.) Among 5–11-year-olds the percentages were 56.1 and 86.3.[275]

Table 4: Safety-related activities of families by income, 1985

	Children under 4 years		Children under 9 years	
Family income	**Family brought infant home in car seat following hospital birth (%)**	**Infant is buckled in car safety seat or wears seat belt all or most of the time (%)**	**Family has telephone number of poison control center available (%)**	**Family keeps ipecac syrup in household (%)**
Less than $10,000	43.1	67.6	43.8	11.4
$10,000–$19,999	57.1	78.2	56.0	20.6
$20,000–$34,999	67.0	86.4	70.3	30.0
$35,000–$49,999	70.7	88.2	72.0	9.1
$50,000 or more	78.0	91.8	75.6	45.8

Source: Schoenborn, C.A. (1988). *Health promotion and disease prevention: United States, 1985.* National Center for Health Statistics: Hyattsville, MD. Based on the Health Promotion and Disease Prevention Section of the 1985 National Health Interview Survey.

Dental visits are related to economic status. Negative attitudes toward dentistry also hinder improved oral health for poor young children.

Private dental insurance was associated with dental visits: 37.1 percent of the insured 2–4-year-olds and 81.0 percent of the insured 5–11-year-olds had visited a dentist in the past year, compared with 27.9 percent of the uninsured 2–4-year-olds and 63.5 percent of the uninsured 5–11-year-olds. In the lowest income group, 69.5 percent of the 2–4-year-olds and 43.4 percent of the 5–11-year-olds had no visits in the past year, compared with 53.0 percent and 13.2 percent in the highest income group. Again, having private dental insurance increased the likelihood of a visit, especially in the older group.[276]

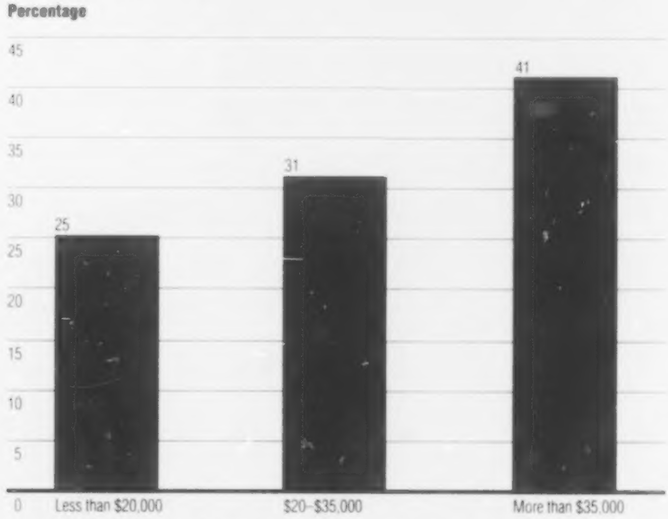
A recent seven-state study of Medicaid-funded dental programs drew the following conclusions:

1. All of the programs fail to cover adequately some basic dental services, particularly newer technologies, such as sealants, as well as many basic therapeutic services, such as periodontal, prosthetic, and orthodontic services.

2. Some dentists believe that they do not provide some services equally to Medicaid patients under 18 and to other patients of the same age.

3. Many barriers restrict the access of low-income children to dental services under state Medicaid programs. These include low provider participation, probably related to low reimbursement rates, onerous paperwork, and a poor perception of the program by dentists. Among recipients, barriers include negative attitudes toward dentistry, a lack of awareness of the program, and transportation problems.[277]

Figure 18: Percentage of children aged 2–4 who had one or more dental visits, by family income, 1986



Source: Jack, S.S., & Bloom, B. (1988). *Use of dental services and dental health: United States, 1986.* National Center for Health Statistics, Hyattsville, MD.

The 1986 NHIS found that the use of fluoride toothpaste, fluoride supplements, and fluoride rinses among 2–4-year-olds increased with income level—except among the most affluent group.[278]

Comparisons with the Nonpoor

Poor women and children currently use fewer services in relation to their health needs than do nonpoor individuals. The evidence is strong, moreover, that both the number of services used and their location is related to insurance status. Medicaid and private insurance make it possible for poor families to use more services, if not always to choose the sites they prefer.

Poor families use different providers than do nonpoor families, and this has implications for their health status: a positive impact when the providers offer those services particularly needed by the poor, but a negative impact when the providers are less qualified, more rushed, or in other ways unable to provide essential services.

In addition, poor families appear to participate less than nonpoor families in activities that might promote health or reduce injury. This situation is probably related to inadequate information, shortage of time, and lack of funds.

The number and location of personal health services used by poor women and young children are strongly related to their health insurance status.

Chapter Seven:
Programs That Have Improved the Health of Children in Poverty

The most effective way to improve the health of poor children may be to improve the financial status of their families. Historians specializing in health and medical care repeatedly document how improvement in a community's economic situation dramatically reduces mortality and morbidity. Indeed, even in the Dickens classic *A Christmas Carol* Scrooge saves Tiny Tim from death by increasing the wages of his father, not by providing the child with medical care.

Chapter Five reviewed the ways poverty affects child health status and suggested how improving a family's economic status might have a favorable impact. Families with more resources, because of employment, income transfers, or various forms of subsidies, are better able to obtain adequate hoasing, more (and more nutritious) food, and transportation to medical care and other needed services. Improved economic circumstances should also reduce depression and lower the sense of hopelessness and powerlessness experienced by many poor families. Additional resources could make more time available for seeking medical care and for engaging in health-promoting activities.

Economic improvements such as these undoubtedly affect health status, but they do not target health problems specifically. Policymakers often seek to improve health status more directly—through regulation, education, and the provision or financing of personal health services. Programs with a direct health focus fall into two major categories: (1) public health or community health programs and (2) personal health services. While the line between these two types is not sharp, this distinction will be followed in this chapter.

Public Health and Community Health Programs

Many public health or community health service programs have been very successful, leading to remarkable declines in mortality and disability. These include programs that focus on:

- Injury prevention
- Lead poisoning prevention
- Nutrition supplementation
- Immunization
- Newborn screening
- Fluoridation

Injury Prevention. Injury prevention programs have definitely improved the health status of children of all economic levels. The Office of Technology Assessment (OTA) reviewed such programs favorably in its 1988 report *Healthy Children: Investing in the Future.*

Injury prevention programs either alter the environment in which children live (and do not require active parental or child involvement) or require active parental or child participation to succeed. Of the two, environmentally based programs reach their objectives most often, but many effective programs combine both approaches. Legislation and regulation can reduce injuries, as can persuasion and education.

Infant death rates associated with all injuries declined by 30 percent between 1980 and 1984. In the 1–4 age group, the decline was 23 percent. Declines were particularly impressive for deaths associated with motor vehicle accidents (37 percent for infants and 25 percent for 1–4-year-olds), drowning (27 percent and 28 percent, respectively), and fire (20 percent and 19 percent).[279] A recent National Safety Council report indicated that the death rate

Injury prevention programs that include the enforcement of regulations and public education are effective in reducing childhood accidents.

from accidents dropped 21 percent in the last decade; the Council attributed the decline to more cautious conduct.[280]

Several measures have contributed to the decline in injuries and injury-related deaths resulting from motor vehicle accidents.[281] A major one was the 55-mile-an-hour speed limit, but since that change was enacted before 1980, it cannot be credited with the most recent injury declines. Restraints also improve motor vehicle safety. Tennessee initiated car restraint legislation for children in 1977, and by 1985 all states had passed legislation of varying degrees of comprehensiveness. Such legislation is most effective if it applies to children of all ages and to all types of vehicles, and if enforcement is vigorous. Physician counseling also increases effectiveness, as does the provision of free car seats.

Improved vehicle and highway design is a third successful way to decrease the number of motor vehicle occupant injuries and deaths. The National Traffic and Highway Safety Act of 1986 authorized the federal government to establish safety standards for vehicles. Federal assistance for railroad crossing improvements and highway safety has also reduced injuries. Laws permitting right turn on red, however, appear to have led to increased childhood injuries.[282]

Decreases in the numbers of burn-related deaths and injuries appear to be the result of greater use of smoke detectors rather than the declining number of house fires. In this instance as well, a combination of legislation and public education has been most effective. One county's law requiring smoke detectors led to a greater decline in the number of burn-related deaths than in a neighboring county without a requirement. Free smoke detectors and parental counseling also seem to have an impact. Federal legislation restricting the flammability of fabrics, particularly those used in children's sleepwear, has reduced the incidence of injury and death.[283]

Federal regulations requiring childproof caps for certain medications have resulted in major declines in poisoning deaths, and legislation calling for warning labels on plastic bags has probably been effective. State or community legislation requiring fences and childproof gates around swimming pools has lessened drowning fatalities. The Massachusetts return-deposit bottle law has contributed to a decline in the incidence of childhood lacerations because fewer glass bottles are accessible to youngsters.

New York City's "Children Can't Fly" campaign, which ordered landlords to install window guards in apartments occupied by families with young children, decreased the deaths resulting from falls. A citywide education program about burns from hot tap water, which included the offer of free thermometers for testing tap water, resulted in better awareness of this safety hazard, and increased testing and the lowering of water heater thermostats.[284] Perhaps the scalding deaths that occurred in a New York welfare hotel could have been avoided if the maximum hot-water temperature in the hotel boilers had been controlled. Antiscalding devices can be found in hotels designed for well-to-do travelers, but not in the hotels that house welfare families.

Communitywide injury prevention programs are effective. One such initiative, the Massachusetts Statewide Childhood Injury Prevention Program, was designed to reduce burns, falls in the home, motor vehicle occupant injuries, poisonings, and suffocations among children from birth to age five. A study comparing intervention and control communities showed that only the former had a significant reduction in motor vehicle occupant injury rates, and that households exposed to information had higher safety knowledge and behavior scores than those not exposed.[285] (The Centers for Disease Control 1987 publication *Prevention of Injuries to Children and Youth: A Selected Bibliography* describes further examples of injury prevention.[286])

Safety measures based on environmental modifications, such as highway design or installation of window guards, benefit children regardless of economic status. Studies of injury, burn, and poisoning prevention activities suggest that measures requiring adult participation, however, put poor children at greater risk than nonpoor children. (See Chapters Five and Six.)

Lead-poisoning Prevention. The second National Health and Nutrition Examination Survey (NHANES II) revealed a decline in the incidence of elevated blood lead levels between 1976 and 1980. Federal legislation, the Clean Air Act, followed by regulations promulgated by the Environmental Protection Agency led to this decline.[287] The actions of other federal agencies also have reduced lead hazards for young children: the Department of Housing and Urban Development in regard to housing, the Consumer Product Safety Commission in regard to toys and furniture, and the Food and Drug Administration and other agencies in regard to canned goods and ceramics.

The lead-paint poisoning prevention programs of the federal government and the states and cities have probably helped.[288] These programs involve screening of children under six living in high-risk areas, treating those with high lead levels, and attempting to delead these children's homes. Deleading has proved to be a very difficult process. If it is not done correctly, the process can actually add lead to the air, dust, and soil.[289]

Nutritional Supplementation. The introduction of vitamin D into milk and of certain B vitamins and iron into grain have helped reduce the incidence of nutrition-related health problems among children—without consumer education or outreach efforts. Food distribution programs have also had an impact. For example, the 1985 National Food Consumption Survey showed a significantly higher daily intake of iron among children 1–5 years when compared with the 1977 survey.[290] Between NHANES I and II (1970–1975 and 1976–1980), the prevalence of iron deficiency declined for infants and young children.[291]

Federal nutrition programs, especially the Special Supplemental Food Program for Women, Infants, and Children (WIC), have improved the health of poor pregnant women, infants, and children. WIC has undergone many evaluations, and despite methodological problems, the weight of the evidence indicates a positive impact on pregnancy outcomes and on child health. The effect may be exclusively through nutritional supplementation or, more likely, through a combination of supplementation and the other two program components: referrals for health care and nutrition education.[292]

When comparing infants of WIC mothers and controls with regard to mean birthweight and mean weeks of gestation, positive differences are small even when statistically significant. However, differences are more striking in the proportions of low-birthweight infants and preterm deliveries. Several analyses suggest lower mortality rates for infants born to WIC mothers than among controls, but few studies have had large enough samples to show

Food distribution and nutrition education programs have improved the health status of many poor children and pregnant women.

statistical significance. The studies indicate that WIC may be particularly effective for high-risk women, and that there may be a dose-response effect: that is, the more months a mother receives WIC benefits, the greater the benefits.[293] One study found that children born to WIC mothers have significantly greater head circumferences at birth and better vocabulary scores and digit memory in childhood.[294] Participation in WIC appears to increase prenatal and well-child visits.[295]

A 1987–1988 five-state study found significant positive results from prenatal participation in WIC of women on Medicaid—despite only minor differences in demographic characteristics between WIC participants and nonparticipants within states. Ten percent of the WIC participants in the five study states received inadequate prenatal care, according to the Kessner Index, compared with 22 percent of the nonparticipants. In each state the Medicaid mothers not participating in WIC were 2–3 times more likely to have received inadequate prenatal care. Prenatal participation was consistently associated with increased birthweight and a lower incidence of low birthweight. Increases in weight were most striking among preterm infants, and less striking among full-term babies. WIC participants had a lower incidence of preterm births and a longer gestational age, but the latter may have been confounded by late registration. Presumably, as a result of these factors, prenatal participation in WIC was associated with reductions in Medicaid costs, ranging from $277 to $598, for mothers and newborns through 60 days. Benefit-cost ratios, or estimated savings in Medicaid costs per dollar of WIC program cost (including supplemental food benefits and an adjustment for administrative and nutrition education expenses), ranged from $1.77 to $3.13.[296]

In a six-state study of low-income children six months to five years old, many of whose mothers were WIC participants, the anemia prevalence declined from 7.8 percent in 1975 to 2.9 percent in 1985. Although anemia prevalence at initial visit declined over time, suggesting that some of the change was not due to public health programs, prevalence also dropped between the initial and the follow-up visits. This was true for children at each socioeconomic level, so it is unlikely that the trend evolved only from economic condition improvements.[297] In a New Haven community health center a "near disappearance" of nutritional anemia occurred among WIC children between 1971 and 1984.[298]

A 1983 study in a poor Memphis neighborhood found that children under two in families receiving Commodity Supplementary Food Program benefits had higher hemoglobin levels, and that all preschool children had higher hematocrits and red blood cell volumes than did program participants surveyed in 1977. Levels of the vitamins A and C and hemoglobin levels in children aged 2–6 improved in all study children, regardless of whether their households participated. The study concluded that this program, along with food stamps and preschool meal programs, contributed to the children's overall nutritional status improvement.[299]

Immunization. Immunization is a personal health service, but it is discussed here in the context of community health programs because immunization levels are closely related to the enforcement of requirements that children be immunized before they enter school, Head Start, or other child care programs. Immunization requirements have reduced preventable childhood diseases, particularly over the last decade, but recently reported increases in some illnesses, particularly measles, suggest major problems with access to primary care services for preschool children or with a lack of parental understanding of the importance of a full schedule of immunizations prior to school entrance.[300]

OTA's report *Healthy Children: Investing in the Future* reviewed the economic evaluations of childhood vaccination programs and concluded, "These studies show that childhood immunization not only yields considerable disease-reduction benefits but also offers substantial economic benefits—i.e., savings in costs that would have been incurred had the disease and its complications not been prevented."[301] In 1983 the benefit-cost ratio for measles immunization was estimated to be 11.9:1; for rubella, 7.7:1; for mumps, 6.7:1; and for the combined vaccine, 14.4:1.[302]

Newborn Screening. The screening of newborns for congenital disorders is also a personal health service, but laws in most states mandate screenings. Public health agencies often manage the screenings, as well as the diagnostic and follow-up services. The previously noted OTA report, using sophisticated economic analyses, found newborn screening to be cost-effective.[303]

Fluoridation. A recent article noted, "Continued research has repeatedly confirmed the safety, effectiveness, and efficiency of community water fluoridation in preventing dental caries for Americans regardless of age, race, ethnicity, religion, educational status or socioeconomic level."[304]

Nevertheless, as of 1988, only 61 percent of the population served by public water supplies had access to water with fluoride levels sufficient to prevent dental decay.[305] Fluoridation is also cost-effective.

Personal Health Services

The effectiveness of personal health services depends on the ability of individuals to obtain appropriate care. The poor, more often than the nonpoor, have difficulty finding easily accessible providers who will accept them as patients, who are culturally acceptable, and who will offer the services essential to their health. The removal of financial barriers to care through a national health insurance plan or an expansion of private and public insurance would be a major step forward in making personal health services available to poor families, but many problems would still remain.

The following section of this chapter will focus on the effectiveness of personal health service programs offered to women of reproductive age and to preschool children. Although many personal health programs have been developed in the last few decades (see Chapter Two), this review describes only programs that have been demonstrated to be "successful" using a methodologically sound approach. Success is measured using both process measures, such as number of prenatal visits, and outcome measures, such as low birthweight. The review is limited largely to evaluations conducted in the 1980s, when statistical methods for controlling confounding variables were available, and to studies published in peer-reviewed journals. Financing mechanisms will be reviewed but not explored in depth.

Starfield's eloquent caveat should be noted:

> The extent to which the effects of health care can be measured is, at best, debatable. Health is primarily a reflection of genetic endowment, the sociocultural environment, and the result of certain personal health behavior. Health services may, of course,

BEST COPY AVAILABLE

> operate "at the margin," and the benefits of "Samaritanism," which lends reassurance or at least gives support to individuals troubled by illness, are largely undocumentable given the current state of the art of measurement.[306]

In its 50th anniversary publication the American Academy of Pediatrics stated, "All children should be born wanted and to healthy mothers," and, "All children should be born well."[307] Thus, this section on programs that have improved the health of children in poverty starts by describing programs that offer family planning and prenatal care.

Family Planning. Researchers have measured the success of family planning programs in many ways. A study using several national data sources for 1978–1982 found that fertility lessened in areas with high rates of enrollment in family planning clinics. The number of clinic sites was the most important determinant of enrollment. The beneficial effect of enrollment held among teenagers and poor women.[308]

Rates of births unwanted at conception dropped markedly among ever-married poor women between 1973 and 1982, but these rates rose between 1982 and 1988.[309] Looking at all women, regardless of marital status, the Alan Guttmacher Institute found that unintended *birth* rates had increased particularly among teenagers and those below poverty. AGI estimated, however, that unintended *pregnancy* rates had deceased among teenagers who had ever experienced sexual intercourse (births: from 85.8 per 1,000 sexually active teenagers to 83.3; abortions, from 96.1 to 87.3; and miscarriages, from 26.8 to 25.4).[310]

In 1987 the National Research Council's Panel on Adolescent Pregnancy and Childbearing reviewed the effectiveness of three types of approaches to preventing teenage pregnancy and childbearing: imparting knowledge or influencing attitudes; providing access to contraception; and enhancing life options. The panel felt that only three programs had documented reductions in adolescent pregnancy: those that improve access to contraceptive services; school-based or school-affiliated clinics; and the Teen Outreach Project, a life options program.[311]

Family planning clinic enrollment is one of the programs that improve access to contraception, and this can reduce teenage births. A variety of family planning clinic practices have been shown to decrease the delay between initiation of intercourse and first clinic visit, and to increase the proportion of patients retained and patient satisfaction.[312] Community support and clinic practices can increase the proportion of those teenagers at risk of unintended pregnancies who obtain services.[313]

School-based or school-affiliated clinics have received a great deal of attention as possible approaches to the prevention of adolescent pregnancy. The model for such programs, in St. Paul, Minnesota, showed a substantial decrease in fertility rates in schools with clinics between 1976–1977 and 1979–1980. After an increase in 1980 due to an influx of refugees, the rates declined again in 1983–1984. Unfortunately, no data were provided on abortions, and the effectiveness of contraceptives alone is unknown.[314]

A school-affiliated clinic in Baltimore reported that from 1981 to 1984 its program of sex education, family planning services, and counseling had a positive effect on knowledge and postponement of first intercourse; increased clinic attendance and contaceptive use for both males and females; and reduced pregnancies.[315]

Family planning services, when accessible in communities and in schools, help to prevent unwanted pregnancies among teenagers and other high-risk women.

In 1985 estimates of the per-pupil cost of school-based clinics ranged from $100 to $125.[316] The Baltimore program listed its costs at $122 per student for all students served over its three-year existence: $23 for classroom and group education students only; $126 for those students who were individually counseled; and $432 for students who received contraceptive services.[317]

Life options programs attempt to motivate adolescents to avoid pregnancy by increasing their sense of self-worth. One such program is the Teen Outreach Program, pioneered in St. Louis, Missouri, which has now been replicated at 35 sites in 30 schools nationwide. Teen Outreach uses classroom discussions of adolescent development tasks and participation in volunteer activities to help reduce pregnancy and school drop-out. Preliminary data indicate that participants, primarily those at high risk, have significantly lower levels of pregnancy and school suspension and drop-out rates than other, similar students—after sociodemographic factors and the level of problem behavior at entry are controlled.[318]

Two other programs have reported success in reducing rates of teenage pregnancy. A school-based educational program, Postponing Sexual Involvement, has been field-tested in Cleveland and Atlanta. It involves a 10-period program for all eighth-grade students, combining education about reproduction, family planning, and sexually transmitted diseases. Older teenagers lead sessions on social and peer pressures and ways to resist them. The Atlanta-based evaluation in a low-income population indicated that among those who had not yet had sexual intercourse, program participants were significantly more likely to postpone sexual activity than were nonparticipants with similar characteristics.[319]

The School/Community Program for Sexual Risk Reduction Among Teens operated a 1982–1987 public health information and education intervention in part of a South Carolina county. The program attempted to reduce unintended pregnancies through educational programs emphasizing decision-making and interpersonal communication skills, enhancing self-esteem, and understanding human reproduction. School teachers attended special courses and worked with project staff to implement sex education in kindergarten through grade 12. Clergy, church leaders, and parents were invited to mini-courses; and the media and organizations were involved. The estimated pregnancy rate among females 14–17 years old declined in the project area more than in the comparison portion of the county. Pregnancy rates increased in three demographically similar counties.[320]

The Alan Guttmacher Institute has calculated that publicly funded family planning services are cost-effective. If these services had not been available in 1987, the additional public costs for abortions and for maternal medical care, welfare, and nutrition programs would have been between $2.90 and $6.20 per unintended birth.[321]

Prenatal Care. Adequate prenatal care is essential to good pregnancy outcomes, especially among poor families. As discussed earlier, however, the adequacy of care cannot be measured only in terms of the amount of care received, that is, the trimester in which care is initiated and the number of visits relative to total weeks' gestation. The content and the quality of care also can have a significant impact on pregnancy outcomes and the other goals of prenatal care.

The Institute of Medicine's 1985 report *Preventing Low Birthweight* and the Office of

Technology Assessment's *Healthy Children* analyzed the effectiveness of prenatal care in preventing low birthweight and infant mortality.[322] Both reviews discussed the methodological problems involved in assessing prenatal care effectiveness and noted that not all studies show favorable impacts. Nevertheless, both concurred that the weight of the evidence indicates that prenatal care is effective, particularly for the clients at highest risk—women who are poor, from minority groups, or young. Not only did these two expert groups find prenatal care effective, but they also deemed it cost-effective; the savings from prenatal care exceed the costs of such care. (Most of the studies reviewed measured the adequacy of care exclusively in terms of the amount of care received; studies not showing positive effects may have analyzed programs in which the content or quality of prenatal care was inadequate.)

Attention to the *content of care* is essential for program effectiveness in prenatal care. Two studies reflect this:

- California's OB Access project (1979–1982) combined a major effort to increase the number of prenatal providers available to poor women with a grant program requiring enhanced services and continuous eligibility throughout the pregnancy. (At that time such a program required a federal Medicaid waiver.) In 13 obstetrically underserved counties, the project enlisted providers willing to offer prenatal care that met state-set standards. The proportion of low-birthweight infants born to women in OB Access facilities was 4.7 percent, compared with 7.0 percent among those in a matched Medi-Cal group. Infants weighing under 1,501 grams represented 0.5 percent of newborns among OB Access women, as compared with 1.3 percent among the comparison group. The proportion of women receiving inadequate care decreased during the project, but it also decreased (though less) in the entire state. OB Access women were less likely to receive first-trimester care than women in the comparison group, suggesting that the quality of care offered may have been more important than the quantity.[323]
- In a 1984 North Carolina county study, obstetricians in office-based practices served Medicaid-eligible women while the health department clinic served poor women without Medicaid or other form of insurance. The proportion of women in the health department group bearing a low-birthweight infant was less than half that in the private obstetrician group, even though the former group started care later and thus had fewer visits. These differences remained significant even after the investigators controlled for race, marital status, WIC participation, quantity of prenatal care, and other risk factors. The authors suggested that these differences were due to the level of WIC participation (45 percent in the private group and 78 percent in the health department group) and the availability of nurse practitioners, case management, and the coordination of services in the health department clinic.[324]

Access to prenatal care is essential for high-risk mothers. Women who do not use care appropriately or at all, whether because of access or motivational problems, increase their risk of adverse pregnancy outcomes. Programs should bring women into prenatal care early and provide the support services that enable them to remain in care and to comply with medical recommendations.

Many programs lead to improved access to prenatal care in low-income neighborhoods—particularly those that reduce financial obstacles and make procedures more "friendly."

The Institute of Medicine's Committee to Study Outreach for Prenatal Care reviewed outreach programs and described five successful ways to improve access to prenatal care:

1. Reducing the financial obstacles to care encountered by poor women through provision of insurance or other sources of payment.
2. Increasing the capacity of the prenatal care system relied on by many low-income women, which includes health department clinics, the network of private physicians who care for Medicaid-enrolled and other low-income women, hospital outpatient departments, community health centers, and similar settings.
3. Improving institutional practices to make services more easily accessible and acceptable to clients.
4. Identifying women in need of prenatal care (case finding) through a wide variety of methods, including hot lines, community canvasing using outreach workers or other paraprofessional personnel, cross-agency referrals, and the provision of incentives.
5. Providing social supports to encourage continuation in prenatal care and, more generally, to increase the probability of healthy pregnancies and smooth the transition into parenthood.[325]

The following programs illustrate these suggestions:

- The Massachusetts Healthy Start Program is an example of a program in the first category—financing. This program, begun in 1985, paid for a full range of maternity services for any pregnant woman with a family income at or below 200 percent of poverty who was not currently enrolled in Medicaid. She could receive care from the provider of her choice as long as the provider was enrolled in the program. Except for Medicaid-eligible women, who had to apply for Medicaid in the usual way, women could complete their registration forms at home. A July–December 1986 evaluation found that Healthy Start participants were more likely than Medicaid women to initiate prenatal care in the first four months of pregnancy and to receive quantitatively adequate care. The program also claimed to have a positive impact on low birthweight and prematurity.[326]
- The OB Access project, described on page 80, is an example of a program in the second category—capacity building.
- Strategies based on the third category, improving institutional practices, include facilities' efforts to modify internal operations to make it easier for clients to obtain care or to stay in care. Facilities have opened satellite clinics, arranged client transportation, reduced the wait for appointments, expedited registration procedures, and provided child care. Several projects have implemented this approach successfully, particularly those sponsored under the Maternity and Infant Care (MIC), Improved Pregnancy Outcome (IPO), and Improved Child Health Project (ICHP) programs.

Perhaps the most striking example was the facilitation of the Medicaid process in the outpatient obstetric clinics at Presbyterian Hospital in New York City. By translating the application form into Spanish and establishing an on-site Medicaid Eligibility

Unit and other innovative procedures, staff reduced the clients' certification waiting time from six weeks to 18 days. Since women were not accepted for prenatal care until the Medicaid process was completed, these changes increased considerably the early initiation of care.[327]

- The fourth category, active case finding, encompasses a variety of initiatives that include employing street workers and basing referral programs in pregnancy-testing centers and WIC programs. Many of these programs have reached a large number of high-risk women, but little information is available on whether the women received more quantitatively adequate prenatal care or experienced improved pregnancy outcomes.

- The final category, social support, includes programs that reach out to pregnant women through workers who listen to their problems and try to solve them, and who educate the clients about prenatal care, labor and delivery, and parenting. Among these efforts have been the Prenatal/Early Infancy Program in Elmira, New York, and the Resource Mothers Program in South Carolina:

    1. The objectives of the Elmira program were to prevent a wide range of health and developmental problems in children born to high-risk women. Nurses' visits to the home, conducted once every two weeks during the pregnancy, stressed parent education, the enhancement of the woman's informal support system, and the linkage of parents with community services. The white participants analyzed, compared with controls, had a greater awareness of community services, attended childbirth classes more frequently, received more WIC vouchers, talked more often with service providers and members of their informal networks about the stresses of pregnancy and family life, indicated that their infants' fathers showed more interest in their pregnancies, and were more likely to be accompanied in labor. They also had fewer kidney infections and made greater improvements in their diets. Birthweight and length of gestation were not significantly better in the visited group as a whole, but both indicators improved among adolescents under 17 and smokers.[328] (For a discussion of the postpartum impact of this program, see page 89.)

    2. Resource Mothers, a South Carolina program for pregnant teenagers under 18, relies on home visiting and other social support services provided by trained indigenous workers. A 1982–1985 study of the program found lower rates of quantitatively inadequate prenatal care among participants than those in comparison groups, and reduced rates of low birthweight and small-for-gestational-age (SGA) newborns.[329]

Prenatal programs directed exclusively at adolescents have improved the pregnancy outcomes in this population. Usually these programs offer, directly or by referral, a minimum group of services including health care, formal education, and casework. Specialized educational programs frequently cover nutrition, childbirth, parenting, and family planning; child care, vocational training, and other services also may be provided. The National Research Council's Panel on Adolescent Pregnancy and Childbearing noted that these types of programs report lower rates of complications of pregnancy, premature labor, low birthweight, and neonatal mortality than do national statistics for similar age-race groups.[330]

Successful programs for pregnant adolescents generally include prenatal nutrition counseling, parenting education, and services such as vocational training.

None of these programs randomize their prospective clients, and few studies have adequate control groups. Therefore, it is unclear whether the favorable results are due to the impact of the programs or to self-selection bias. Nevertheless, evaluations suggest that several program models have been associated with improved health and social outcomes for pregnant and parenting adolescents—clinic-based programs, alternative-school approaches, school-based health clinics, and home-based programs:

- Clinic-based programs that provide special prenatal and postpartum sessions for adolescents are frequently placed in urban communities where large numbers of poor minority adolescents reside. In New Haven a community health center's Young Parents Outreach Program (1982–1987) offering center- and home-based support from indigenous workers reported a lower rate of low-birthweight infants among its primarily black and Hispanic population than among all women in the city.[331] The Teen Mother and Child Program at the University of Utah School of Medicine provides medical, psychosocial, and nutritional services to pregnant adolescents, young mothers, and their infants. When researchers compared program participants with women who received care from community health providers, few differences were found in pregnancy outcomes; but at 12 and 26 months postpartum the participants scored significantly better on composite measures of medical, psychosocial, and parenting events, even after confounding variables were controlled.[332]

- Alternative school programs rarely offer on-site prenatal care. Rather, workers attempt to identify teens in need of prenatal care early in their pregnancy, refer them to local clinics and to WIC, educate them about the importance of good nutrition during pregnancy, provide them with case management and counseling, and supervise the keeping of prenatal appointments. The Teenage Pregnancy and Parenting program (TAPP) in San Francisco found that only 9 percent of infants born to its racially mixed group of clients during 1982–1987 were low birthweight, compared with 12 percent of infants born to all teenagers in the city. Furthermore, only 12 percent of clients conceived again within 12 months of the index delivery.[333]

- The school-based health clinic in St. Paul, described briefly on page 78, allowed teenagers to receive prenatal care in the school where they spend the majority of their time. A 1972–1976 analysis of this program indicated that most students using the clinic received quantitatively adequate care and WIC benefits and that their pregnancy outcomes were positive.[334]

- Resource Mothers, described on page 82, is an example of a home-based program for teenagers.

Legal Abortion. Women at high risk for poor pregnancy outcomes represent a large proportion of those women seeking abortions. These include teenagers, unmarried women, and poor women. In addition, some women who undergo prenatal screening procedures (maternal serum alpha-fetoprotein determination, chorionic villus sampling, and amniocentesis) decide to terminate their pregnancies if fetal problems are detected. The availability of abortion can reduce the number of deliveries among high-risk women and among those carrying a fetus with congenital

BEST COPY AVAILABLE

Infants who would have died 10 years ago are leaving hospitals well today, largely because of regionalized perinatal care.

disorders, thereby lowering the number of infants and children born with serious health problems. Studies conducted over the past two decades by the National Bureau of Economic Research, described below, indicate that abortions can reduce maternal and infant mortality.

Regionalization of Perinatal Care. Perinatal regionalization has reduced neonatal mortality and probably infant and childhood morbidity. Analyses of birthweight-specific infant mortality rates have shown that the last decade's improvements in infant mortality are due to the reduction in the rate of deaths among low-birthweight infants rather than to a reduction in the proportion of infants who are low birthweight and, therefore, at high risk of mortality and morbidity. Infants who would have died 10 years ago are leaving hospitals well today, largely because of the neonatal intensive care units and their place in a regionalized system of services.

Two multisite programs have evaluated perinatal regionalization:

- The Regional Perinatal Study promoted coordinated systems of prenatal care in eight areas between 1970 and 1979 and analyzed the results. Neonatal mortality decreased in all of the study areas, but since the rates also decreased in comparison areas where regionalization efforts were launched independently, evaluators could not state unequivocally that the decline was due to efforts in the study areas.[335] Some policy analysts have suggested that the increased survival rates of low-birthweight infants might result in higher rates of physical or mental handicaps. However, an analysis conducted as part of the Regional Perinatal Study found that the risk of *minor* congenital anomalies or developmental delay decreased in the study areas, and that the proportion of children with severe or moderate congenital anomalies did not change.[336]
- The Rural Infant Health Project (1979–1982) attempted in several ways to improve the health of newborns in 37 rural counties. The most successful efforts involved perinatal regionalization.[337]

A review of the Improved Pregnancy Outcome (IPO) program noted that infant mortality in the IPO-funded states dropped more than in the non-IPO states in the 1976–1982 period. Researchers attributed the decline to increased utilization of perinatal centers in the IPO states—a process that benefited from the IPO initiative.[338]

Unfortunately, perinatal regionalization seems threatened by the competitive medical care environment. Hospitals may be unwilling to send pregnant women or newborns to more specialized units because of competition for patients. Health maintenance organizations may have affiliations with certain hospitals and be reluctant to use other institutions, even for high-risk women and infants. These trends should be closely watched for adverse effects, particularly on neonatal mortality.[339]

The Relative Importance of Programs Before Birth and in the Neonatal Period. Over the last two decades the National Bureau of Economic Research has conducted a series of studies to determine the relative effectiveness of the types of interventions described above, as well as several others.

1. One study found that between 1964 and 1977 the availability of neonatal intensive care units, abortion, and family planning had the greatest impact on neonatal mortality rates for

whites; WIC ranked next. For blacks, abortion services and community health centers were the most effective interventions, with neonatal intensive care units following.[340]

2. The second study examined the effect of the variables above, holding birthweight constant. Factors contributing to reduced neonatal mortality rates for whites and blacks were, in declining order of importance, abortion, prenatal care, WIC, and neonatal intensive care units. The effect of each factor was more dramatic for blacks than for whites.[341] (The influence of abortions in reducing the incidence of poor birth outcomes was confirmed in an additional study.[342])

3. In a third study the bureau examined cost-effectiveness. The most cost-effective strategies for whites were the initiation of prenatal care in the first trimester and the WIC program, followed by the abortion option or teen family planning, depending on the method used. The least cost-effective approaches were community health programs and neonatal intensive care units. The most cost-effective measures for blacks were early prenatal care and WIC coverage; teenage family planning services and neonatal intensive care units followed. For both whites and blacks the most cost-effective interventions for averting low birthweight were prenatal care, WIC, and the option of abortion.[343]

Using a similar methodology but more recent data (birth and death certificates from 1979 and 1980) and a more limited set of program variables, another researcher found that reducing the delay in obtaining prenatal care lowered the rates of low birthweight and neonatal mortality among whites only. He found no effect of abortion.[344]

Comprehensive prenatal care can do more than just improve pregnancy outcomes. As the Expert Panel on the Content of Prenatal Care has urged, care before pregnancy (the preconception visit), during pregnancy, and after pregnancy (the postpartum visit), should include prevention components that would improve the health of the mother, the infant, and the entire family unit for at least a year after delivery. The perinatal period provides a "window of opportunity" that can affect the lives of poor families in many ways. Unfortunately, the present priority on medical problems and immediate pregnancy outcomes does not capitalize on the potential of prenatal care.

Primary Health Care During the First Five Years of Life. The American Academy of Pediatrics, as well as other professional groups, urges that between birth and age six all young children see a health care provider at regular intervals even when well. Most children, in addition, see their providers because of illness, injury, or other problems. Since poor children are more likely than nonpoor children to have health problems and to have difficulties obtaining care, there is a pressing need for effective primary care programs for poor children.

Beginning with the 1921 passage of the Sheppard-Towner Act, federal, state and local governments have attempted to provide primary health care to those who could not afford private services. Such an approach, developing programs largely or exclusively for the poor, has both positive and negative aspects. It is a form of segregation, and segregation often leads to inequality. Also, programs for the poor usually have less public support and are more vulnerable to budget cuts than those available to and used by all. On the positive side, programs developed for the care of poor and other disadvantaged groups often provide essential services that are unavailable, or available by referral only, in the private sector.

Organized systems of primary health care for poor children include state and local health department clinics and community or migrant health centers. Many poor children also receive care in hospital outpatient clinics, in health maintenance organizations, and in private physicians' offices—with charges paid for by Medicaid or other federal or state programs. Head Start and WIC are organized service programs with primary care components targeted at the poor, although they are not primarily medical programs. The Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program has outreach, financing, and service elements to assist poor children. Some health departments and other health and social agencies offer programs of home visiting and social support to poor families.

- *Health Department Clinics.* Health department clinics serve large numbers of poor infants and young children, but there are few recent evaluations of their effective-ness. During the 1960s and 1970s Maternity and Infant Care (MIC) and Children and Youth (C&Y) projects underwent several evaluations. Similarly, evaluations of the Improved Pregnancy Outcome (IPO) and Improved Child Health Project (ICHP) programs were conducted in the early 1980s, but most of these evaluations focused on pregnancy outcomes.

  In 1986 the Children's Defense Fund conducted one of the few studies of Title V–funded health department services to pregnant women and children. The report noted that prenatal care programs reached only a small proportion of those in need, that inpatient maternity services were even more limited than prenatal services, that pediatric outpatient programs frequently offered only well-child care or had age restrictions, and that inpatient pediatric care was usually available only to children with special health care needs.[345]

  The federal Maternal and Child Health Bureau provides funds to states for maternal and child health through a formula, and to Special Projects of Regional and National Significance (SPRANS) through set-aside funds. These funding mechanisms are part of the Maternal and Child Health Services Block Grant, Title V of the Social Security Act. The MCH Bureau influences program development by identifying areas to be explored through SPRANS grants, selecting sites for such projects, and providing various forms of support to the states. These activities are sometimes called the Title V program, but they constitute, in effect, a financing and technical assistance program that supports many state and local programs, particularly state and local health department clinics. For this reason federal Title V activities are not reviewed here.

- *Community and Migrant Health Centers.* Community and migrant health centers grew rapidly in number between their inception in the 1960s and 1980, and their caseloads increased as well. However, the Health and Resources Services Administration reported that in 1986 only 580 federally funded community health centers and 123 migrant health centers were operating, a significant decline from the 1970s.[346] In 1989 community health centers served more than 2 million children under 19, and the migrant health centers served almost 240,000.[347] Early evaluations of community health centers indicated that they had a major impact on the health of poor families. Few recent studies have evaluated their effects on

Head Start children are eligible for a broad range of medical, dental, mental health, and nutrition programs—but only two out of five poor four-year-olds are enrolled.

child health generally, although some of the prenatal care programs described on pages 80–83 involved community health centers.

- *Head Start.* Low-income children between age three and the age of compulsory school attendance are eligible for Head Start. At least 90 percent of the children in each Head Start program *must* be from low-income families, and a minimum of 10 percent of enrollment opportunities must be reserved for handicapped eligible children. According to the U.S. Bureau of the Census, 5 million Head Start–eligible children, five years old and younger, were living in the United States in 1988. Head Start was then serving one out of five eligible 3–5-year-old children.[348] In late 1990 a Head Start official indicated that 39 percent of all eligible four-year-olds had been enrolled in 1989, and that 41 percent were expected to be reached after 1990 expansions.[349]

Head Start regulations state the following objectives for the health services component:

1. To provide a comprehensive health services program that encompasses a broad range of medical, dental, mental health and nutrition services to preschool children, including handicapped children, to assist their physical, emotional, cognitive and social development toward the overall goal of social competence.

2. To promote preventive health services and early intervention.

3. To provide the child's family with the necessary skills and insight and otherwise attempt to link the family to an ongoing health care system to ensure that the child continues to receive comprehensive health care even after leaving the Head Start program.

In 1980–1981, Abt Associates evaluated Head Start health services using a randomized pretest/post-test design. They studied programs in four regions of the country—two rural and two urban—that the Public Health Service considered to be underserved in terms of medical and dental services.

Abt found that Head Start children were receiving more preventive and remedial health services than other low-income youngsters. These services included medical examinations, tuberculin tests, lead tests, dental examinations, vision screenings or evaluations, and speech screenings or evaluations. Head Start children were also more likely to receive treatment for a single health problem (but not for multiple medical problems), to have dental fillings, and to receive speech therapy. Head Start families served more nutritious meals in their homes, and the program had positive effects on motor development and speech and language performance.[350]

The investigators found no significant differences in height and weight; blood levels for hematocrit, hemoglobin, and other biochemical measures; vision deficiencies (although they noted a positive trend); or prevalence of otitis media and other hearing evaluation measures.[351] Another Head Start evaluation stated that the program had positive effects on cognitive ability, self-esteem, and achievement motivation, and improved physical health, motor coordination, and social behavior.[352]

The federal Head Start office has reported that in 1988–1989, 99 percent of the children enrolled 90 days or more completed medical screening; 98 percent of those identified as needing treatment received it, and 98 percent completed all immunizations required or were up-to-date in their immunizations.[353]

- *Early and Periodic Screening, Diagnosis, and Treatment (EPSDT).* The EPSDT program has tremendous potential for improving the health of poor children—and its potential increases as Medicaid eligibility is broadened federally and in many of the states. Although EPSDT is a mandated part of Medicaid, and Medicaid is an entitlement rather than a fixed appropriation, restrictive state policies, a lack of enthusiasm for the program in many states, and low rates of provider participation have limited the ability of EPSDT to serve Medicaid-eligible poor children. Several investigators have documented EPSDT program implementation problems.[354] In 1989, 1.0 million children out of 10.4 million eligible children were enrolled in continuing care arrangements, and an additional 3.2 million had initial or periodic screenings reported—suggesting an overall participation rate of 41 percent. Of those with an initial or periodic screening, 26 percent had problems. Participation rates ranged from over 75 percent in Arizona, Colorado, and South Carolina to under 10 percent in Connecticut, Delaware, Indiana, and Iowa.[355]

Two published evaluations have reported favorably on EPSDT. A 1973–1980 Michigan study found that referral rates dropped with the number of screenings, suggesting that the children's health status improved over time. This relationship remained even when the investigators controlled for age. Mean medical costs did not decline with the number of screenings, but were 13 percent

Young children enrolled in Head Start or tested in the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program have a better chance of having their health problems resolved before the problems become chronic or cause major impairments.

Participation rates for the EPSDT program in 1989 ranged from 75 percent in some states to 10 percent in others—even though EPSDT services are mandated by Medicaid.

lower for EPSDT participants than for nonparticipants. The differences diminished, but did not disappear, when researchers included EPSDT program costs in the analysis.[356]

In a five-county Philadelphia area, a 1977–1979 study reported that two-thirds of the children with a health problem at the time of an initial screening had the problem resolved by the time of rescreening. Vision problems seemed to be the most persistent. When these children were compared with a control group, EPSDT participants had almost 30 percent fewer abnormalities requiring care.[357] Studies from Ohio and North Carolina showed that EPSDT participation reduced medical care costs.[358]

- *Home Visiting and Social Support.* Home visiting and social support programs are being promoted and evaluated for their impact on parenting practices and on child abuse and neglect, as well as on pregnancy outcomes. Among the Elmira women at highest risk for postpartum care-giving dysfunction, the group visited by public health nurses during pregnancy and the postpartum period showed better results than the group visited during pregnancy only. (See page 82.) Both groups showed better results than the group not visited at all. There were fewer instances of verified child abuse and neglect (of marginal significance). The mothers benefited as well: in the unmarried group there were fewer subsequent pregnancies, and the birth of the second child was postponed longer.[359] The Resource Mothers home-visiting project also showed a positive effect on parenting skills among adolescents.[360]

The OTA report *Healthy Children* reviewed five community programs that emphasized home health visitors, including the Elmira project, noting that all except one effectively reduced child maltreatment and influenced other outcomes.[361]

The General Accounting Office has also reviewed the evaluations of home-visiting programs, reporting that one or more studies demonstrate improved pregnancy outcomes, fewer infant injuries, improved immunization rates, lower reported incidence of child abuse and neglect, and reduced developmental delay. The GAO also reported cost savings for families visited at home, as did the Elmira project.[362]

Programs for Children with Special Health Care Needs. State Title V programs for children with special health care needs, previously called crippled children or handicapped children programs, have traditionally been responsible for services for this population, particularly for low-income families. Beginning in 1965, some of the financing shifted to the state agency responsible for Medicaid, usually the welfare department, and the provisions of P.L. 99-142 increased the educational system's attention to some of these children. P.L. 99-457 is now encouraging the development of early intervention efforts for at-risk children under age three, directed by state and local education authorities in some states and by health departments in others.

Many program descriptions and service statistics are available from projects that have assisted children with special health care needs, but few recent evaluations involve this population group. As many state and local agencies undertake or expand early intervention programs for children who show developmental delay, evaluations of programs for these young children, many of whom are poor, should increase.

A recent multisite, randomized trial demonstrated the efficacy of a comprehensive early intervention program in reducing the developmental and health problems of low-birthweight infants. The program included weekly home visits for the first year, with biweekly visits thereafter, participation at child development centers five days a week from 12 to 36 months, and bimonthly parent group meetings beginning at 12 months. The intervention group, in comparison with a follow-up group, had significantly higher mean IQ scores, significantly fewer maternally reported behavior problems, and no difference in serious health conditions, although there was a small but statistically significant increase in maternally reported minor illnesses—for the lighter birthweight group only.[363]

The Pediatric Home Care program at the Bronx Municipal Hospital Center in New York City, serving mostly poor children with special health care needs, provides an excellent example of an evaluated program. Between 1978 and 1981 the program provided social supports and medical care for children with chronic physical conditions aged one month through 10 years. Services included patient monitoring, direct service delivery, teaching therapeutic programs to patient and family, service coordination, patient advocacy, and health education and support.

The program offered these services in the home and in the clinic and hospital. Home visits enabled the staff to teach patient and family in the setting in which care was to be given, and to evaluate needs in the household context. Using a randomized pretest/post-test design, researchers found significant differences (at six months and one year) between the program group and the standard care group in terms of the children's psychological adjustment, the mother's psychiatric symptoms (significant at six months only), and the mother's satisfaction with the child's care. Functional status and the impact of the health condition on the family did not differ significantly between the groups.[364]

The Florida-based Rural Efforts to Assist Children at Home (REACH) program trains indigenous nurses in rural communities to recognize and manage the problems of chronically ill children and their families. These nurses become a part of the health care team at the tertiary care center and serve as consultants and liaison staff for the specialists. Researchers found that participant families, compared with a control group, had a smaller increase in health care expenditures, a smaller increase in emergency room use, and a higher EPSDT appointment compliance rate. Levels of family and provider satisfaction were high, but there were no significant differences in school attendance or family stress.[365]

Managed Care. Several states have obtained waivers that permit them to allow or to require Medicaid-eligible families in the entire state or in selected communities to enroll in a form of managed care. Managed care can be offered by a health maintenance organization, an independent practice association, or another type of provider group. These groups enroll a defined population, and they furnish or arrange medical care for a pre-established amount per individual. They usually attempt to limit the use of services outside the group.

The Suffolk County (New York) Children's Medicaid Program, a 1983–1985 experiment in capitated prepayment and case management, found managed care to be successful for both patients and physicians. The research team randomly assigned physicians to a prepaid capitation or fee-for-service plan. The capitation

Case management for Medicaid families can contribute to continuity of care, control of expenditures, and quality of care.

group was at limited risk for the cost of referred services, and the participating children were guaranteed one year of Medicaid eligibility. In both groups the physicians received higher-than-usual Medicaid reimbursements because of their case-management responsibilities.

The research team reported the following:

1. Physicians in both payment groups were satisfied with the way case management contributed to continuity of care, controlled Medicaid expenditures, eased referrals, and made it easier to provide comprehensive care.

2. In relation to comparison groups, children in both groups had significantly higher utilization of primary care and of office-based physician services, were more likely to see the same physicians when they went for care, were closer to standards of minimum visits for appropriate care set by the New York State Child Health Assurance Plan, and had fewer clinic visits but no significant reduction in emergency room visits. Furthermore, their parents were more likely to obtain advice from the physician rather than from someone else when they consulted over the phone.

3. The capitation group had fewer specialist visits and lower hospital expenditures than the fee-for-service and comparison groups because of financial risk sharing.

The team felt that the project success was due partially to allowing families to choose their primary care physician and to extending Medicaid eligibility for enrolled children.[366]

While managed care programs, including health maintenance organizations (HMOs), have the potential to provide high quality care to Medicaid-eligible families, the potential for abuse exists. The Children's Defense Fund has reported that Medicaid children in managed care programs sometimes do not receive all of the benefits to which they are entitled. The short period that many children spend on Medicaid may act as a disincentive because HMOs usually consider it cost-effective to provide all necessary services to new enrollees as soon as possible—in order to minimize expensive preventable conditions later. This practice may not be cost-effective for the Medicaid population, however, since by the time the initial—and frequently expensive—services are provided, a child may no longer be eligible for Medicaid and may be disenrolled. Thus, the HMO does not receive its expected benefits over time.

In addition, the Medicaid-HMO contract may not guarantee a child's right to EPSDT, and to control costs HMOs may limit referrals to specialized care, including family planning clinics, services for children with special health care needs, or the best-equipped neonatal intensive care units.[367]

Financing Issues. The financing of personal health services for the poor and near-poor is complex whether offered in the public or the private sector. The proportion of poor and near-poor families covered by private insurance is decreasing, and Medicaid, the major public insurer of these families, covered fewer than half of them until recently.[368] Gaps are filled inadequately through clinics supported by grants, through charity, or through cost-shifting.

In earlier years the availability of Medicaid had a major influence on the utilization of personal health services by poor families.[369] Medicaid may have been responsible for part of the earlier decline in infant and childhood mortality rates, although many confounding factors make this difficult to prove. Medicaid is certainly partially responsible for the increased numbers of contacts poor children have with physicians—a phenomenon that has brought the physician contact rate for poor children close to or equal to that of nonpoor children, although not when health status is controlled.

Studies cited in Chapter Six indicate that Medicaid patients are more likely to receive primary health care than are the uninsured. Data showing utilization decreases caused by Medicaid's absence provide further proof of its effectiveness in improving access. For example, many experts believe that the slowing down of the infant mortality decline and the lack of improvement in early prenatal care initiation in the mid-1980s was related to the 1981 AFDC reductions. These reductions resulted in the loss of Medicaid eligibility by many pregnant women and children.[370]

While further expansions of Medicaid coverage should receive high priority, Medicaid itself will not solve the medical care needs of poor families. Problems will remain concerning the availability of services and the content and quality of care. Several studies have suggested that low birthweight and other adverse pregnancy outcomes have not been and probably will not be reduced significantly by raising Medicaid eligibility thresholds to include more near-poor pregnant women.[371] Rather, the need is to provide better care to those women and children who are already eligible for Medicaid. A large proportion of Medicaid-eligible women living below the poverty line are at high risk, and they require augmented services. Funds spent to bring them into care earlier, and to provide additional psychosocial services, might have a greater impact on morbidity and mortality rates than funds spent to make women who are less poor, and probably at lower risk, eligible for Medicaid.

Effectiveness of Programs

This country has the knowledge necessary to improve the health status of its poor families. While additional evaluations would be helpful in refining and targeting the programs, evidence is already available to show that many programs are effective. These programs should be made universally available. The expansion of effective programs is hampered by inadequate funding, insufficient numbers and inequitable distribution of providers, and the absence of a national determination to provide health care to poor children.

This country has the knowledge necessary to improve the health status of its poor families.

Chapter Eight: Policy Strategies and Program Approaches for Improving the Health of Poor Young Children

Over the past eight decades, federal, state, and local governments have approached the problem of improving child health in many ways. They have attempted to improve the environment as well as provide personal health services. Both regulatory and educational approaches have helped modify behavior, and legislators have provided funds for services through entitlements and limited appropriations. Some programs have been means-tested. Some have addressed only the maternal and child health populations. Others have been open to all. Both financing mechanisms and direct service provision have been tried. Grants have been made available through formulas and in response to project applications. Responsibility for program administration has been lodged in different government agencies—health, welfare, and education.

All of these approaches could have a positive impact on children in the future, as they have had in the past. This chapter attempts to distill what we have learned and to suggest ways to improve further the health of poor children. It will consider various program approaches to meeting the health needs of young children living in poor families.

Policy Strategies

Economic and Educational Approaches. Historically the major impact on the health of people of all ages has resulted from improvements in their educational and economic situation, including housing and nutrition. The studies reviewed in Chapter Three show the importance of family income and maternal education. Possibly the most effective strategy for improving poor children's health is to ensure that all women and men receive an education that prepares them to be economically productive and caring, informed parents.

Environmental Modifications and Personal Health Services. Public health interventions that do not require the active participation of children or their parents appear to be more effective than those that do. Modifications in highway design have saved more lives than emergency medical services. Fluoridation of water supplies has reduced childhood caries more than dental care. Personal health services are obviously needed, because all illnesses and injuries cannot be avoided, but environmental measures should receive high priority.

Legally Enforceable Measures and Education. No one wants to live in a society whose government makes excessive rules about personal activities. Nevertheless, laws are very effective methods of encouraging healthy behaviors. Children must be immunized before they enter school. Infants must ride in car seats, and children as well as adults must use seat belts. Speed limits, lead-based paint restrictions, childproof caps on medications, fire-retardant clothing, and many other legally enforceable requirements have had major effects on child health. These measures have maximum impact when accompanied by public education and vigorously enforced, but education alone is less productive. Generally a regulation is effective only when a large proportion of the population is already complying with the recommended procedure. (Witness the failure of Prohibition.) Public education is essential to the adoption of a health-promoting activity, but regulation and enforcement help motivate those who are resistant.

Entitlements and Appropriations-limited Programs. The largest proportion of federal social welfare funds goes to entitlement programs. Under a true entitlement, anyone who meets the eligibility criteria established by law and regulation must receive the benefit.

Improving child health and safety requires regulations that modify the environment. Improved highway design has saved more lives than emergency medical services.

Congress passes specific appropriations bills to fund these programs, but if expenditures for eligible applicants exceed the appropriation, eligible individuals must be served through supplemental appropriations. The federal government and the states often try to circumvent the financial responsibilities of entitlement programs by restricting eligibility requirements, by limiting the covered benefits, or by making the application process difficult. Aid to Families with Dependent Children (AFDC), Medicaid, and the Supplemental Security Income–Disabled Children (SSI-DC) program are true entitlements.

In contrast, the size of the yearly appropriation limits other children's programs. These "quasi-entitlement" programs, despite established eligibility requirements, are not legally required to serve all eligible individuals once the appropriation is exhausted. If the cost of providing services to all those eligible exceeds the appropriation level, the program establishes priorities, as in the Special Supplemental Food Program for Women, Infants, and Children (WIC), or limits the number of sites receiving funding, as in WIC, Head Start, and the Maternal and Infant Care (MIC) and Children and Youth (C&Y) projects. Thus, despite their demonstrated effectiveness, WIC and Head Start serve a limited proportion of eligible children. Policymakers usually cite the high cost of entitlements as the reason for not extending them.

Programs begun as entitlements, such as Medicaid and the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program, continue to expand and have the potential for serving all eligible children. Not all children and pregnant women eligible for Medicaid benefits receive them, and the same could be said of other entitlement programs, even P.L. 94-142. These shortfalls are usually due to poor administration, including failure to inform people of their rights, limited outreach, and difficult registration procedures. These problems, however, may be easier to solve than those encountered in appropriations-limited programs.

To some extent, the entitlement vs. appropriations-limited distinction may be a false dichotomy, because faced with what they consider unacceptably high expenditures, governments find ways to limit even true entitlement programs. Also, when a program is in its early, demonstration phase, appropriations may be the best way to control it until it has been proven effective and administrative problems have been solved. Nevertheless, the evidence suggests that more entitlement programs are needed, and that some appropriations-limited programs, especially WIC, should become entitlements. Recent federal legislation has moved Head Start toward becoming an entitlement.

Universal and Means-tested Programs. Programs targeted at the poor, usually means-tested, are more likely to be reduced in scope under financial pressures than are universal programs, those designed to serve all people regardless of income. Means-tested Medicaid has less public support than universal Medicare, and means-tested AFDC has less support than universal Social Security. If all children, or all adults, are eligible for a program, there is considerable resistance to reducing its appropriation. Given limited funds, programs should probably aim to serve those with the greatest need, usually the poor, and therefore must be means-tested. The federal government's two most popular social welfare programs, however, Social Security and Medicare, are universal. (A recent article noted: "Programs that benefit all citizens do more to reduce poverty than programs targeted to the poor. . . .

A new strategy for family security makes more sense than another War on Poverty."(372)

Financing Strategies and Provision of Direct Services. Financing strategies that pay private practitioners on the basis of services rendered can bring many welfare and working-poor families into care if the private medical care system has the capacity to absorb them, as the Healthy Start Program in Massachusetts and even Medicaid show. The financing approach is often successful because many families prefer to choose their provider. Choice is at least theoretically possible in financing-type programs, although in practice some providers may not accept patients if the reimbursement levels are low.

Direct service programs can provide care in areas without an adequate number of private providers, or wherever private providers refuse to serve poor patients. Moreover, these programs frequently offer a broader range of social and health services than are available in the private sector. An additional argument for direct service provision under federal, state, or local government regulation and supervision is the potential for greater control over the content and quality of services. Although controls are theoretically possible under a financing mechanism, they are more difficult to enforce. Nevertheless, legislators seem reluctant to expand direct service facilities. Community health centers, funded initially through federal grants, have provided care to thousands of people who would not otherwise have received it, but these facilities are limited in number. The same can be said of health department clinics.

Basing Programs in the Health, Welfare, or Education System. Previous chapters have described the increasing importance of the welfare and education systems in improving the health of poor families. If EPSDT is to reach its maximum effectiveness in most states, the welfare system will need to be convinced of its value and shown how to implement the program effectively. If foster children are to receive the physical and mental health services they need, the welfare system has to do the outreach. If children are to be saved from repeated episodes of abuse, the welfare system must be strengthened. If homeless families are to find decent housing, the welfare system must provide access to it.

But the welfare system in most states is not as able as the health system to monitor the content or quality of health care. If it were possible to go back in time and grant the health system responsibility for the children's Medicaid program and EPSDT, the quality and content of care might improve. Such a change seems unlikely, however, and progress is possible only through greater collaboration. The welfare system has more clients and more money than the health system, so the latter must reach out to the former. A reassuring sign is that meetings between Title V representatives and Medicaid directors have taken place periodically for the past few years and have resulted in significant improvements in understanding and in programming.

The education system is also deeply involved in health issues. In most states the education agency is the lead agency in implementing P.L. 99-457, which is designed to provide services to children from birth to age three who are experiencing developmental delay, have physical or mental conditions that have a high probability of causing such delay, or, at state discretion, are defined to be at social or environmental risk of experiencing such delay. P.L. 94-142, which the education authority always administers, serves children and

Many low-income families eligible for child health care benefits do not receive them. Application processes are difficult; "welfare" is stigmatized; and some states do not use assertive outreach methods.

adolescents aged 3–21. Education departments need assistance with their new health-related responsibilities for this age group.

The relationships between health and welfare and between health and education are very different. Welfare is stigmatized. People sometimes forgo health benefits rather than seek help in a welfare office. Welfare remains outside most people's lives. Education, however, is everyone's right; it is mainstream. If health services are needed for children to obtain the maximum benefit from education, parents usually try to obtain them. Even so, placing responsibility for monitoring health services in the education system has disadvantages—mainly because of that system's basic interest in education per se, and also because universal coverage generally begins only at age five. Finally, the education system is a complex bureaucracy, and local and state policies vary considerably.

Formula and Project Grants. Federal laws authorize both *formula* and *project* grants. Formula grants usually go to all qualifying states, with the grant amount based on a formula that divides the total funds available according to factors such as the number of individuals eligible or the number in poverty. Project grants often go to organizations other than states, are usually discretionary, and are frequently competitive.

Formula grants—such as the block grants created early in the Reagan administration—allow states or counties discretion in the use of funds; when a state or a local community knows how to plan and to allocate resources, the formula approach encourages creativity. Project grants are usually more specific in terms of services to be provided and populations to be served. Demonstration projects should always receive funding under project grants. However, they often develop a life of their own and are not defunded if they do not work. When they are effective, the number of projects is usually not expanded sufficiently to make the services available to all who need them. The project grant is probably the correct approach when a state or locality appears unable or unwilling to provide needed services.

The federal Maternal and Child Health Bureau administers the Maternal and Child Health Services Block Grant (MCHSBG), authorized by Title V of the Social Security Act. This is a formula grant to states for a wide range of services to improve maternal and child health. In addition, states and other agencies apply competitively for project grant funds set aside for Special Projects of Regional and National Significance (SPRANS). This combination of formula and project grants, plus technical assistance and other forms of guidance to assist states and territories, has the advantage of being flexible and of encouraging state initiatives.

During the Reagan years, the federal Office of Maternal and Child Health had limited power to intervene when state programs were weak, and accountability was generally low at the state level. The 1989 revisions of the Title V legislation placed more demands on the states. The law now requires that states conduct statewide assessments every five years on the need for preventive and primary care services for pregnant women, infants, children, and adolescents, and for services for children with special health care needs. These assessments must be consistent with the *Healthy People 2000* objectives. Grant applications must contain a plan for meeting identified needs and a description of how block grant funds will be used to carry out such a plan. States must also submit annual reports indicating how many individuals have been served, types of services provided, and indicators of health status and health problems. As of 1989 states were also mandated to use 30 percent of federal funds for preventive and primary care services for children, and 30 percent for services to children with special health care needs, unless they receive a waiver.

Administering Programs at the Federal, State, and Local Levels. All three levels of government need more effective programs to improve children's health. The federal government has the largest tax base and can equalize economic differences among the states. It should assume leadership in many matters, particularly those involving large expenditures, such as financing approaches to health services. States, however, are more aware of the problems within their own boundaries and may be in a better position to plan. Formula grants enable them to use federal funds in ways they believe are effective. Unfortunately, some states seem unwilling or unable to care for the health of poor families, and in these cases the federal government should have the power to intervene directly or offer project grants to local agencies.

City and county governments also have the potential for planning and providing services. They should be encouraged to experiment with new ways of developing programs. But, as in the federal/state relationship, the states should be ready to take action when local programs are inadequate or of poor quality.

Addressing the Needs of Mothers and Children—or the Health Needs of All. Many people consider the United States to be a child-oriented society, but programs offering benefits to mothers and children do not always gain substantial support. Health and safety measures and financing proposals addressed to the entire population may be more likely to receive attention. As noted recently, "Designing special programs for children, separately financed and administered, runs the risk of creating policies and programs that fail to address the broader forces shaping children's health care and that lack a sufficiently broad political base to assure future public support."[373]

Program Approaches

What steps are necessary to improve the health of America's infants and young children, particularly those who are poor? The first and most important action would be to alleviate poverty itself. In addition, improvements in the environments in which children live are necessary, and personal health services must become more available and appropriate.

Alleviate Poverty. Poor children's life circumstances need to be improved *now*. This can be accomplished directly by providing their families with such essentials as housing, food, clothing, child care, and transportation; or by making welfare or other payments high enough to enable families to purchase them; or by employing parents at wages that enable them to rise above poverty, assuming high quality child care; or by a combination of these approaches.

Modify the Environment. Programs that have made the environment healthier for young children have had a significant impact on child health over the last few decades, as described in Chapter Two. Even so, neither the federal government nor state and local legislatures and administrators are fully exploiting the environmental opportunities to further reduce mortality, injuries, and illnesses. The reluctance of the federal government to require air bags in automobiles is one example, and the lack of local enforcement of housing codes and of safe

Aggressive actions will be required to rid the environment of sources of lead poisoning and to reduce the tragic effect of drug addiction on infants.

driving practices—such as the use of restraints and the observation of speed limits—is another. Environmental modifications can be accomplished in a number of ways:

- Governments can use their authority to change the physical environment in which children live—by fluoridating water supplies, modifying highways, eliminating drug trafficking in residential neighborhoods, and undertaking similar measures that do not require the family's active participation.
- Legislatures can pass measures requiring manufacturers, landlords, and others to modify products to ensure the safety and health of those who use or live in them. Vigorous enforcement must follow such legislation.
- Organizations can provide families with information and education about health-promoting behaviors—both those cited in the law, such as use of automobile restraints and avoidance of illegal drugs, and those outside the law's jurisdiction, such as not smoking and restricting children's access to harmful substances in the home.

Regrettably, advocates and legislators rarely think about environmental modifications when they consider ways to improve child health. These efforts have little glamour in contrast to high-technology medicine. Nevertheless, injuries remain the primary cause of death in children between the ages of one and five, and are among the top 10 causes even for infants under age one. Injuries are also major causes of restricted activity and permanent handicapping. Lead continues to be found in the blood of young children, with a wide range of negative effects. Drug addiction leads to compromised infants and to pediatric AIDS.

- *Increase Injury Control.* Chapter Seven described the regulatory and education programs that could reduce injuries. The knowledge is present, but the will seems to be absent.
- *Prevent Lead Poisoning.* In December 1990—20 years after Congress had declared lead-based paint to be a health hazard—the director of the Centers for Disease Control stated that "lead poisoning is the No. 1 environmental problem facing America's children. Therefore, it will take a major societal effort to eliminate it." CDC's Strategic Plan for Eliminating Childhood Lead Poisoning will involve the Department of Housing and Urban Development (HUD), the Department of Health and Human Services (DHHS), and the Environmental Protection Agency (EPA).[374]

In 1990 HUD issued the first federal lead guidelines for the identification and abatement of lead-based paint in public and Native American housing developments. These are recommendations and are not mandatory. HUD also released a survey showing that three-quarters of the 77 million private homes built before 1980 contain lead-based paint. These 57 million homes house an estimated 9.9 million children under age seven.[375]

DHHS will soon issue new guidelines for the testing and treatment of lead poisoning and for lead abatement, and state and city health departments will be responsible for many essential activities. EPA, which has statutory authority to regulate lead in air, soil, and water, is expected to lower the permissible level of lead in drinking water, ban lead from plumbing fixtures, and prohibit the incineration and disposal of lead batteries in public dumps.

This new new initiative will require aggressive action by federal, state, and local agencies if it is to be effective. Older housing, in which so many poor families reside, must be checked for lead-based paint. If lead is found, the housing must be made lead-free or destroyed. Deleading must be conducted appropriately to avoid adding lead to the air or the ground, particularly where infants and toddlers play. In some areas, the soil is so contaminated that it literally must be removed. Other sources of lead, including gasoline, water, and industrial emissions, must be eliminated or significantly reduced. And infants and children, particularly those in poor families, must be routinely tested for blood lead; and when elevated levels are detected, their environments must be checked and the cause of the elevated lead found and removed.

- *Reduce Drug Dealing.* Drug addiction is having a tragic effect on infants, both directly, through physical and behavioral problems, and indirectly, through increased violence and sexually transmitted diseases, including AIDS. The medical care and social services costs of drug addiction are staggering. Increased law enforcement activities are essential to reduce drug dealing. In addition, greater efforts to educate youth are urgent, starting in elementary school. All women of reproductive age should receive counseling about the consequences of drug use.

  Since drug dealing is concentrated in poor neighborhoods, reductions in poverty rates might also lead to declines in drug-related violence, trauma, addiction, and disease. If alternative ways to support oneself and one's family were available, the drug trade would be less appealing.

Make Personal Health Services More Available and More Appropriate. Many personal health services are clearly effective in improving child health, particularly those that are preventive in nature. It is time to ensure that they are available to all, that they are of high quality, and that they include all the components necessary to improve the poor family's health status. Among these essential services are the following:

- Family planning
- Prenatal care that encompasses nutritional supplementation, education, social support, and substance abuse treatment programs for pregnant women
- Perinatal regionalization
- Newborn screening
- Immunization
- Primary health services for all children
- Specialized health care for children with special needs

While some health care planners question the cost-effectiveness of frequent medical visits for seemingly well children (other than for immunizations), perhaps because of a lack of sensitive research, poor children need such visits because they are more likely than others to have problems that their parents do not recognize.[376] Poor children and their parents can benefit particularly from the anticipatory guidance and preventive health counseling that primary care settings should offer.

As documented in Chapter Three, injuries, illnesses, and hospitalization occur disproportionately among children who live in poverty. Community-based personal health services are essential to treat poor children who are sick or injured, as well as to reduce hospitalization and usage of expensive hospital-based clinics and emergency rooms. In addition,

BEST COPY AVAILABLE

children with special health care needs must receive ongoing primary and specialized medical care. Prompt and equitable enforcement of the Supreme Court's decision about the eligibility of disabled children for Supplementary Security Income will help in this process.

Expand Insurance Coverage. Ensuring the availability of personal health services entails reducing financial barriers. The federal and state governments are considering several health insurance proposals, including these:

- Universal coverage, perhaps through a system similar to the Canadian model
- Requirements that employers provide insurance to employees and their dependents
- Medicaid expansions to include all people not covered by employer-based insurance, and perhaps allowing near-poor families to buy coverage
- Insurance pools
- Combinations of the above, possibly emphasizing cost containment through managed care, copayments and deductibles, and other mechanisms

If policymakers are not yet prepared to enact a system of health insurance covering all Americans, they should seriously consider an age-limited federally supported insurance program, financed through general revenues, which would offer universal, non–means-tested coverage specifically for family planning, maternity care, and care for children under age six. Such a program ("Kidicare") would be the counterpart of Medicare for the elderly. It would be expensive, even after current Medicaid spending for these services and administrative costs are subtracted, but Kidicare would cost less than Medicare or the expansion of federal coverage to all age groups. (The costs of reproductive and child health care are low relative to those of other age groups.) Kidicare would remove the stigma attached to Medicaid and, if reimbursement levels were equivalent to those in Medicare, would allow families to choose their providers.

If Congress is not yet ready for this type of comprehensive program—although one suspects that the country is—the probable alternative is the combination of a mandated program of employer-financed health insurance and a Medicaid program for which more families would be eligible (perhaps with an income criterion of 200 percent of poverty or a buy-in option for those above a specified level of income). A new insurance program, whether Kidicare or an employer-financed/Medicaid combination, should enforce a minimum benefit package, not leaving these decisions to state discretion.

Increase Health Provider Availability. Regardless of whether national or state health insurance programs are initiated, providers must be financially and geographically available to the poor. It is unlikely that almost any level of Medicaid reimbursement acceptable to legislators will draw private providers into certain underserved areas, including inner cities and the least sparsely populated rural areas.

The federal government, in collaboration with the states, should maintain a project grant system to fund comprehensive facilities in those areas. These would include local health department clinics, community health centers and migrant health centers, and possibly hospital outpatient departments oriented to primary care. Support for public-sector facilities should be sufficient to attract professionals and to provide services and surroundings that will attract poor families. The National Health Service Corps should be expanded to help

Many successful health care programs for young children have not been replicated. Many existing services need to be reorganized and coordinated.

staff these facilities and to provide care in underserved areas that need only one or two providers rather than a comprehensive facility.

Most families, even poor ones, prefer seeing physicians in private offices to attending clinics—whether in hospitals, community health centers, or health departments. This preference is probably not amenable to change. Medicaid reimbursement of physicians and others in the private sector should be high enough to encourage them to treat poor families, and high priority should go to devising financing mechanisms that allow poor families to choose private providers if they prefer.

The medical liability problem must be addressed, especially in regard to maternity care. In 1989 the Institute of Medicine recommended several short-term solutions, including extending federal tort claims coverage, or its equivalent, to government-financed community health centers and migrant health centers, and having states either indemnify or subsidize the medical professional liability premiums of obstetric providers who participate in Medicaid or otherwise offer care to poor women.[377]

Expand Proven Programs. The Chapter Seven review of nationwide programs underscores the absence of expansion or replication of successful initiatives. WIC and Head Start are not yet entitlements, although Congress has promised to make Head Start available to all. EPSDT implementation is inadequate in many states, despite models of effective service delivery. Here, as well, Congress has moved to force the states to enroll more poor children in the program. Programs for pregnant and parenting adolescents are still demonstrations, and home-visiting programs are still experimental. Areas that could benefit from primary health care facilities, such as community health and migrant health centers, and local health departments, cannot obtain them. Additional federal and state funding is essential to make these programs available where needed. (*Within Our Reach: Breaking the Cycle of Disadvantage* by Schorr and Schorr provides many examples of effective programs and suggests what makes them work.[378])

Some actions that should be taken are:

- *Convert WIC and Head Start to Entitlements.* Two quasi-entitlement programs particularly should be converted into full entitlements: WIC and Head Start. These programs have proved their effectiveness and should be able to register all who meet income, age, and other relevant criteria. Funds for outreach activities should accompany this conversion to make all eligible families aware of the availability of these programs. Federal and state agencies should encourage local providers to expedite enrollment, offering technical assistance when needed.

- *Enlarge the EPSDT Program.* Aggressive implementation of EPSDT might lead to major improvements in the health status of poor children. All Medicaid-eligible children should receive screening, diagnosis, and treatment at accessible and acceptable facilities. Screening follow-up is essential to ensure that diagnosis and appropriate treatments occur, and children should be recalled for periodic examinations at appropriate times. Even under these circumstances, however, restrictive Medicaid eligibility procedures could limit the number of poor children who would receive any services or a full range of services.

For EPSDT to reach its potential, states must move decisively to encourage enrollment, to develop needed follow-up systems, to reimburse providers at levels that will encourage participation, and to increase the range of covered services. New federal legislation mandates many of these measures. The active participation of the health department's maternal and child health unit has led to higher screening ratios in some states, since health departments are more likely than welfare departments to conduct outreach.

- *Increase Targeted Programs.* While this monograph advocates entitlement and universal approaches to improving child health, some targeted programs clearly are essential to help those poor women and children who are at high risk. Universal programs are usually inadequate for the needs of these individuals. Special expanded programs are necessary for children in foster care, migrants, Native Americans, the homeless, and families residing in inner-city housing projects and remote rural areas.

Reorganize Existing Services. Immediate action should address improving existing services. Poor families cannot wait for the outcome of the current health insurance debate; moreover, these improvements would be beneficial regardless of the outcome. Steps should be taken immediately to improve health services:

- *Develop a Network of Primary Care Facilities.* A nationwide network of publicly supported primary care facilities should serve areas where private practitioners are absent or where they do not serve the poor. This network should include the existing local health department clinics, community and migrant health centers, and hospital outpatient departments. The network should reflect a plan based on an assessment of underserved areas, eliminating facilities that are duplicative, and adding new facilities where needed.

- *Coordinate or Integrate Primary Care Facilities.* Federal and state policymakers should review the current functioning, distribution, and financing of community and migrant health centers and their relationship to health department clinics. Community health centers undoubtedly provide access to services that might otherwise be difficult or impossible to obtain. Consequently, the federal government should continue to expand these facilities both in funding level and in number.

When these centers first opened, in the 1960s, they improved the health of poor families and provided better health care than was otherwise available. They were placed in underserved areas and were required to include community residents on their boards of directors. These features and others enabled them to respond to the needs of the families and individuals who entered their facilities, to reach out to those who needed but had not sought care, and to plan solutions to community health problems. For a variety of reasons, primarily the continued struggle for adequate funding, some community health centers may no longer be performing their unique mission. In some communities they remain the only source of primary health services for poor families; in others they operate as alternatives to hospital outpatient departments and health department clinics.

The role of the health department clinic in today's child health care scene is unclear. As with community health centers, local health department clinics in some areas are the only source of family planning, prenatal

Poor families need a wide range of coordinated services. Yet they are the ones most likely to be offered care in limited-service facilities.

care, and well-child or primary health services. In others they are alternatives to hospital outpatient departments and community health centers.

Some advocates have suggested that health department clinics drop their "well-child conference" orientation and move toward full primary care status. Some clinics have made this change, including several that began as Children and Youth projects. Other experts believe that such a change would be detrimental. It might reduce the number of sites at which care is available; it might be expensive because of the need for more highly trained personnel; and private practitioners might see it as competitive. (Health department or Visiting Nurse Association nurses often operate the well-child conferences; they generally do not have midlevel nurse practitioner training, and they are not viewed as competition.)

Several states have already converted their health department clinics into full-service facilities. The role of health department clinics in states with statewide Medicaid waivers, which place a large proportion of poor children in health maintenance organizations, also warrants examination.

The actual *integration* of health department clinics and community and migrant health centers into a single state-sponsored system of ambulatory health centers has been suggested.[379] Concern about the depth of state health department interest in the health needs of poor families, particularly in areas with large minority populations, helped to create the community health centers and may still be relevant today. Also, the fear that children "get lost" in a system that serves all ages, and particularly the elderly, must be addressed. Nevertheless, having two systems of primary care within a state appears inefficient. If the model for integration were that of the community health center—that is, a comprehensive primary care center responsive to community needs and preferences—rather than the health department model of well-child care under a centralized authority, then the advantages of such an integrated system might outweigh the disadvantages.

- *Phase Out Limited-service Clinics.* A primary care network would be most effective if facilities offering a limited range of primary care services were phased out in favor of full-service facilities. Families prefer and need continuity of care; poor families, in particular, often do not follow through on referrals; and it is difficult to transfer information important for medical care from one site to another. Families who pay for their care out of pocket or through private health insurance do not seek prenatal care from providers who do not plan to deliver their babies. Nor do they seek immunizations or well-child care from providers who do not treat their sick children. Poor families, who probably need continuity of care more than higher-income families, should not have to seek care from facilities that provide partial services.

- *Assign Planning and Quality Control Responsibilities.* A state agency must take responsibility for analyzing maternal and child health care needs and services, determining where gaps occur, and finding ways to provide services to the needy. Such an agency also might be responsible for monitoring quality. The 1989 Title V legislation requires state maternal and child health agencies to conduct needs assessments and to plan, but state financial resources are often insufficient for the planning stage or the development of new projects. Many maternal and child health units in state health departments have already assumed a quality control role.

Change Unfriendly Institutional Practices. Institutions sometimes create financial and other barriers to services. Many obstacles, such as waiting lists and long delays in offices and clinics, are the result of inadequate funding and understaffing. Other obstacles seem to be a function of insensitivity. Expanded staff training and education are essential to detect and ameliorate these situations. Many case management and social support programs spend a great deal of time guiding families through complex, difficult, and unresponsive systems. If institutions received encouragement to make their procedures more "user friendly," and obtained assistance in doing so, outreach workers and case managers could spend their time more effectively.

Some communities appear to believe that additional programs are the only solutions to their maternal and child health problems. Often, however, positive results can come about through modification of bureaucracies, however entrenched, and explorations of the strengths and weaknesses of programs, followed by needed changes.

Modify the Content and Delivery of Care. Poor families frequently need programs designed for their specific health and social problems and delivered in ways especially adapted for them. For many poor women and children, the services of social workers, nutritionists, translators, outreach workers, and others are essential. Facilities serving the poor need sufficient funding to employ these staff. Some maternity care offered to poor women today is inadequate for their degree of obstetric risk. Assessment of the adequacy of prenatal care should not be based exclusively on aspects of the woman's behavior--that is, whether she initiates care in the first trimester of pregnancy and follows the American College of Obstetricians and Gynecologists (ACOG) schedule of visits. Certainly, early initiation of care and visits appropriate to level of risk are important, but the content of the care is equally important, as is the quality. Early and frequent visits cannot always improve the outcomes of pregnancy, particularly among poor women, in the absence of such comprehensive services as nutrition supplementation and education, programs to end smoking and other addictions, specialized tests such as maternal serum alpha fetoprotein and amniocentesis, and premature labor prevention. Education and counseling services for pregnant women should be available at medical care facilities, in neighborhood centers, and at home; in person, by phone, and through audiovisual materials; and on a one-to-one and group basis.

If the quality of care is inadequate—because the providers are not well trained or the facilities are underequipped as a consequence of lack of funds or lack of interest—prenatal care will not reach its potential. Labor and delivery services in facilities appropriate to the level of maternal and infant risk, and within a well-planned and well-integrated regionalization system, are also essential.

Poor families need better information and education about their needs and the most effective ways of meeting them. A discrepancy seems to exist between what providers believe is appropriate personal health care and what many poor families seek; this discrepancy may be due to inadequate education. For example,

Infants from poor families are more likely than others to have health problems their parents do not recognize. Preventive health counseling should be available for young low-income parents.

some women believe that early prenatal care is unnecessary.

Similarly, with regard to the care of the well child, many poor families do not understand the value of periodic examinations after immunizations are completed. If the discovery of unknown conditions is relatively low between the ages of one and six, perhaps healthy children do not need to see a physician frequently in that period. Rather, they can undergo screening in one of the other systems in which they are involved. With an ever-increasing proportion of preschool children in child care, compulsory examinations prior to admission, such as those conducted on school entrance, would help many poor preschoolers. Immunizations, assessment of growth and development, nutrition education, and similar services and education could take place at child care facilities. Many Head Start centers serve as models for this.

It is easy to understand why emergency rooms are often the preferred site of care for poor families: no appointments are needed for visits, the facility sometimes offers transportation, and it provides care for a range of conditions. Poor families should be made aware of the limitations and appropriate use of emergency services. More important, administrators should seek remedies for the problems that make traditional primary care sites seem unresponsive.

Health providers and policymakers often seem convinced that the way health care is offered now is the only way that it can be provided, even though many people who need health care find the system unacceptable. Experimentation with new forms of health care delivery should be encouraged, such as school-based clinics and the use of mid-level practitioners, home visiting, and mobile vans.

Concluding Thoughts

Something must be done to improve the health of poor young children. Simple justice cries out for them to have a start in life, in terms of health, equal to that of the nonpoor. They have not chosen to be born into poor families and should not suffer because of their parents' situation. Fortunately, child health advocates need no longer rely only on the equity argument. The business community is aware of its stake in the health of children. Without healthy young children, this society will not maintain an efficient work force or an effective military establishment.

Basic changes are essential to improve the circumstances in which poor young children live. The studies reviewed in Chapter Three make it clear that among the factors contributing significantly to the health problems of infants and children are poverty, inadequate parental (particularly maternal) education, and having a teenage mother. The chain of causality may start with education and proceed to employment, the delay of parenthood, and the encouragement of stable family life. Along the way, a more healthy environment, improved health practices, and the ability to obtain health care may help achieve better health. It is imperative that this society find ways to keep young women and men in school until they receive an education that enables them to become productive members of society, as well as informed, active parents. This should be a top domestic priority.

It is difficult to understand why obtaining funds for Medicaid expansion or programs to reduce infant mortality is easier than finding support for innovative educational services, for family housing, or for converting WIC into an entitlement program. This is not to deny that tremendous efforts are needed to secure additional health care dollars, but rather to suggest that legislators are at least sympathetic to medical needs—even when they are unable to find funds to meet them. Pleas for funds that would make children's lives *worth* living, not just keep children alive, receive less attention.

Unfortunately it is very simple for those interested in the provision of child health services to say, "My business is health," and leave the problems of education, housing, and welfare reform to experts in those fields. The evidence suggests, however, that health is a more powerful lobby and that legislators believe they can solve, or at least alleviate, some of the problems of poverty by providing personal health services. Perhaps the time has come for health care experts to acknowledge the weakness of the interventions they provide, to stop "medicalizing" social problems, and to join forces with those groups concerned with the larger problems—and in that way to reach their own goals of reducing mortality and morbidity.

Children must be wanted not only by their parents, but also by society—and children growing up in urban slums or rural squalor cannot feel wanted. Legislators have assisted other populations. They have lifted most of the elderly out of poverty (while leaving many young families in dire circumstances), and they have made renal dialysis (but not prenatal care) available to all. This society needs interventions at all ages and throughout many systems to improve the life options of parents and children.

Children should not be living in poverty in the United States today. Perhaps the most important task for child health advocates is to inform those who govern, and those who elect them, about the magnitude of the burden an unresponsive society places on children.

Legislators have lifted many of the elderly out of poverty and provided Medicare for their health-related needs. The time has come to provide equal benefits to the young.

Glossary

Aid to Families with Dependent Children (AFDC). In 1935 the Social Security Act established Aid to Dependent Children, a cash grant program enabling states to assist children who did not receive financial support from their fathers and who were in need. This program was renamed Aid to Families with Dependent Children in 1965. It now provides cash payments for needy children who lack support because at least one parent is deceased, disabled, continually absent from the home, or (at the option of the state) unemployed. Since 1990 states have been also required to provide cash payments to needy two-parent families whose principal earner has been unemployed for six out of 12 months.

Centers for Disease Control (CDC). This agency, headquartered in Atlanta, Georgia, is the primary U.S. government organization for disease prevention and control, and health promotion. CDC is part of the U.S. Public Health Service, within the Department of Health and Human Services. It encompasses four centers and one institute: the Center for Infectious Diseases, Center for Environmental Health, Center for Health Promotion and Education, Center for Prevention Services, and National Institute for Occupational Safety and Health.

Children and Youth (C&Y) Program. This federal special grants program, legislated through amendments made in 1965 to Title V of the Social Security Act, funded projects for comprehensive health services for children and youth. Originally, C&Y projects were awarded as discretionary grants through the federal Children's Bureau (whose health programs are now within the Maternal and Child Health Bureau). Later, they became a requirement for state Title V programs. After 1981, states were no longer required to have one or more C&Y projects.

Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). The Department of Defense operates this program to cover medical care costs for spouses and children of active military personnel, and for retired military personnel and their dependents, whenever government medical facilities are unavailable. Among federal programs, CHAMPUS is second only to Medicaid in the size of its support for children's health care.

Community Health Center (CHC). These facilities provide primary health care to residents of areas deemed medically underserved by the Secretary of Health and Human Services. Although policies vary from center to center, generally all individuals from these areas may obtain services.

Current Population Survey/Current Population Reports (CPS/CPR). The Bureau of the Census, U.S. Department of Commerce, conducts surveys and publishes a series of population reports in addition to the decennial census reports. Periodic sample surveys obtain data on income, poverty, health insurance, child care, and other health-related variables. The reports present estimates, projections, sample counts, and special studies of selected segments of the U.S. population.

Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) Program. This health care program, administered by the states, offers early health screening, diagnosis, treatment, and periodic follow-up services to Medicaid-eligible infants and children. It is mandated by federal law and is funded by states and the federal government.

Emergency Maternity and Infant Care (EMIC) Program. EMIC was initiated during World War II to provide maternal and child health services to pregnant wives and infants of personnel in the lowest ranks of the armed services. The 1943–1948 program was administered by the Children's Bureau through state health departments.

General Accounting Office (GAO). The GAO assists Congress, its committees, and its members in their legislative and oversight work. It makes recommendations for more efficient and effective government operations. The GAO studies health-related problems when requested to do so by Congress or upon the recommendation of GAO health policy staff.

Health Maintenance Organization (HMO). HMOs are organizations that integrate service delivery with financing to encourage cost-efficient behaviors by both consumers and providers. Consumers usually join HMOs through their place of employment. Members of HMOs pay a fixed annual or monthly fee, independent of their use of services, and they are covered only if they use the HMO staff and facilities. If they seek services outside the HMO, they pay for these services directly, with few exceptions. The HMO assumes some of the financial risk or gain involved in the provision of services. Primary care practitioners coordinate patient medical care to reduce overutilization.

Hispanic Health and Nutrition Examination Survey (HHANES). In the National Health and Nutrition Examination Surveys (see below) conducted during the 1970s, the number of Hispanics in the samples was too small to permit reliable estimates of their health status. The Hispanic Health and Nutrition Examination Survey was conducted in 1982–1984 to obtain data on the health and nutrition of U.S. Hispanic groups. The three groups studied were Mexican Americans residing in selected counties of Arizona, California, Colorado, New Mexico, and Texas; Cuban Americans residing in Dade County, Florida; and Puerto Ricans residing in the New York metropolitan area.

Improved Child Health Project (ICHP). Initiated in 1978 to improve child health outcomes, the federal Improved Child Health Project followed the pattern of the Improved Pregnancy Outcome (IPO) program (see next page). A portion of the funding for ICHP, however, covered in-hospital care.

BEST COPY AVAILABLE

Improved Pregnancy Outcome (IPO) Program. Initiated in 1976, this special federal program was launched in response to national concerns about infant mortality and morbidity rates. The federal office of Maternal and Child Health awarded five-year grants between 1977 and 1980 to 34 states ranking poorly in infant mortality.

Infant Mortality. Infant mortality includes all deaths in the first year of life, including those in the neonatal and postneonatal periods. About 1 percent of live-born infants in the United States die in their first year of life—38,910 in 1988. (See also Neonatal Mortality and Postneonatal Mortality.)

Intrauterine Growth Retardation (IUGR). IUGR is a delay in the normal growth and development of the fetus due to genetic factors, maternal disease, or fetal malnutrition. Infants who have suffered from IUGR are referred to as small for gestational age or small for date. They may be full term or earlier or later than term.

Low Birthweight (LBW). Infants weighing less than 2,500 grams (or 5 1/2 pounds) are considered low birthweight. Infants weighing 800–1,500 grams are very low birthweight. Infants who weigh less than 800 grams are extremely low birthweight.

Maternal and Child Health Services Block Grant (MCHSBG). This federal block grant program, authorized under Title V of the Social Security Act, provides funds to states for health services to pregnant women, infants, children, and adolescents. States determine the services to be provided, which can include prenatal care, well-child clinics, immunizations, dental care, family planning, and a wide range of inpatient and outpatient services for children with special health care needs. Created by the Omnibus Budget Reconciliation Act of 1981, the MCHSBG consolidated several categorical grant programs.

Maternal Serum Alpha Fetoprotein (MSAFP). MSAFP levels are measured during pregnancy to detect neural tube defects, anencephaly, and various chromosomal problems, such as Down syndrome.

Maternity and Infant Care (MIC) Program. Authorized in 1963 as a federal-state initiative to reduce infant mortality and morbidity, the MIC program offered preventive, diagnostic, and hospital services to low-income women and their infants. Originally MIC projects were awarded as discretionary grants through the federal Children's Bureau (whose health programs are now within the Maternal and Child Health Bureau). Later they became a requirement for state Title V programs. After 1981 states were no longer required to have one or more MIC projects.

Medicaid. Title XIX of the Social Security Act, passed in 1965, authorized Medicaid as a means-tested entitlement program for medical assistance vendor payments. The program was designed to provide medical assistance to needy families with dependent children and to aged, blind, or disabled individuals whose incomes and resources were insufficient to pay for necessary medical services. At the federal level the program is administered by the Health Care Financing Administration of the Department of Health and Human Services. In 1987 the federal government gave states the option to raise the income eligibility level of pregnant women and infants to 185 percent of poverty. Effective April 1990, Medicaid eligibility was mandated at 133 percent of poverty for pregnant women, infants, and children up to age six. Since each state designs and administers its own program within broad federal guidelines, there are substantial variations among states in persons covered, services offered, and amount of payment for services.

Metropolitan Statistical Area (MSA). An MSA is a geographic area consisting of a large population nucleus with adjacent communities that have a high degree of integration with that economic and social nucleus. The definition specifies a boundary around a large city, usually including most or all of its suburbs.

Migrant Health Center (MHC). These facilities provide primary and some supplementary and environmental health services to migratory and seasonal agricultural workers and their families.

National Center for Health Statistics (NCHS). The National Center for Health Statistics is one of the major federal statistical organizations. It has legislative authority to collect statistics on the extent and nature of illness and disability in the United States, including life expectancy; incidence and prevalence of acute and chronic illness and disability; infant and maternal mortality and morbidity; determinants of health; health resources; use of health care resources, including use of ambulatory services, hospital care, nursing homes, and other long-term care facilities; health care costs and financing; and family formation, growth, and dissolution. The Center conducts many annual, periodic, and longitudinal surveys to produce a wide range of health statistics. It obtains records or computer files from states and other registration areas to publish national data on vital statistics. It maintains an inventory of health facilities.

National Health and Nutrition Examination Surveys (NHANES). These ongoing surveys were designed to assess the health and nutritional status of adults and children in the United States through interviews and direct physical examinations. The interview includes demographic, socioeconomic, dietary, and health-related questions. The examination component consists of medical and dental examinations, physiological measurements, and laboratory tests. The data are used to estimate the prevalence of major diseases, nutritional disorders, and potential risk factors. The data are also the basis for national standards for such measurements as height, weight, and blood pressure. These data are used in epidemiological and health sciences research to direct and design health programs and services. NHANES I was conducted from 1971 through 1974 from a sample of the civilian, noninstitutionalized U.S. population aged 1–74. NHANES II, conducted from 1976 through 1980, targeted those aged six months to 74 years. Data collection for NHANES III began in 1988 and will continue for six years. The sample will represent the civilian, noninstitutionalized population aged two months and older.

National Health Interview Survey (NHIS). The NHIS, carried out by the National Center for Health Statistics, is a continuing nationwide survey in which data are collected on the incidence of acute illnesses and injuries, the prevalence of chronic conditions and impairments, the extent of disability, the utilization of health care services, and other health-related topics. The NHIS data have been collected through personal interviews with household members by U.S. Bureau of the Census interviewers since the survey's inception in 1957. The questionnaires consist of two parts—a set of basic health and demographic items and one or more sets of questions on current health topics.

National Health Service Corps (NHSC). The 1970 Emergency Health Personnel Act (P.L. 91-263) authorized the NHSC to recruit and place physicians and other health professionals in areas designated as having health personnel shortages. NHSC was initially conceived as a response to the lack of physicians and other health providers in rural areas, but the Corps later moved into impoverished urban areas.

National Hospital Discharge Survey (NHDS). The National Hospital Discharge Survey is a continuing nationwide sample of short-stay (averaging less than 30 days) hospitalization in the United States. It has been conducted since 1965. Information gathered includes trends in hospital discharges, diagnoses, procedures, and average length of hospitalization.

National Medical Care Utilization and Expenditure Survey (NMCUES). Conducted in 1980 and 1981 by the National Center for Health Statistics and the Health Care Financing Administration, this survey examined both utilization and expenditure data on various types of medical care for use in cost containment, planning, and evaluation. It obtained data on health, access to and use of medical services, associated charges, sources of payment, health insurance coverage, and expenditures and health services with special emphasis on those provided under the Medicaid and Medicare programs.

National Natality Survey (NNS). Sponsored in 1980 by the National Center for Health Statistics and several other federal agencies, the NNS extended the range of information available in the vital statistics registration system. The NNS sampled mothers, physicians, hospitals, and other medical providers in the pregnancy-related service area to obtain data on child and family characteristics; prenatal health behavior; maternal health practices such as smoking and drinking before and during pregnancy; breastfeeding; low birthweight; and family planning and sterilization.

National Survey of Family Growth (NSFG). This periodic survey, sponsored by the National Center for Health Statistics, is based on interviews of a sample of women of reproductive age. The NSFG data are a primary source of information on U.S. fertility patterns, infertility, reproductive health, contraception, childbearing plans, sex education, and AIDS. The survey also obtains information on topics related to child development, family composition, unwanted childbearing, adoption, adolescent pregnancy, unmarried motherhood, prenatal care, postnatal care, and infant health. Cycles I–IV were conducted in 1973–1974, 1976, 1982–1983, and 1988, respectively.

National Vital Statistics System. Through the National Vital Statistics System, the National Center for Health Statistics collects and publishes data on births, deaths, life expectancy, infant mortality, fetal deaths, abortions, marriages, and divorces in the United States. Data are published in *Vital Statistics of the United States, Monthly Vital Statistics Reports,* and *Vital and Health Statistics.*

Neonatal Intensive Care Unit (NICU). These service units are found in hospitals that deliver many high-risk women. The units use high-technology equipment to care for infants who require monitoring and therapy because of low birthweight or other life-threatening conditions.

Neonatal Mortality. This statistic is the number of deaths of live-born infants less than 28 days old. The neonatal mortality rate is typically reported as the number of deaths per 1,000 live births.

Office of Technology Assessment (OTA). This congressional office was created in 1972 as an analytical arm of Congress. OTA's basic function is to help legislative policymakers anticipate and plan for the consequences of technological changes and to examine the ways in which technology affects people's lives. Studies are conducted in the area of health.

Personal Health Services. "Personal health services" and "medical care" denote services provided by, or under the direction of, physicians or other clinicians. While such care may be preventive, it often involves the treatment of an acute or chronic illness or an injury. These services can be contrasted with public health/communitywide approaches to improving a population's health status.

Postneonatal Mortality. This statistic is the number of deaths of infants from 28 days old to the first birthday. The postneonatal mortality rate is typically reported as the number of deaths per 1,000 live births.

Poverty Line. The federal government states that families are living in poverty if their cash incomes, including cash assistance from the government, adjusted for family size, fall below a minimum standard. The index is based on the Department of Agriculture's 1961 Economy Food Plan and reflects the different consumption requirements of families based on their size and composition. The Department of Agriculture's 1955 Survey of Food Consumption determined that the average family (four persons) spent approximately one-third of its income on food. The poverty level was therefore set at three times the cost of the Economy Food Plan and adjusted for family size. The poverty line is updated annually to reflect changes in the Consumer Price Index.

Presumptive Eligibility. This is an Omnibus Budget Reconciliation Act (OBRA-1986) statute that gives states the option to designate certain health providers as qualified to grant temporary Medicaid eligibility for pregnant women while their formal application is being reviewed. The providers are not held liable if the women are deemed ineligible later.

Public Law 94-142. Enacted in 1975, P.L. 94-142, the Education for All Handicapped Children Act, requires states to provide a free, appropriate education for all handicapped children between 3 and 21 years of age (except where services for 3–6-year-olds and 18–21-year-olds are inconsistent with state law). Individual Educational Plans (IEPs) must be developed jointly and regularly by parents and school staffs, with legally binding procedural safeguards.

Public Law 99-457. Enacted in 1986, P.L. 99-457 reauthorized the Education for All Handicapped Children Act and amended it to include an early intervention program to meet the special needs of handicapped infants and toddlers and their families. The Preschool Grant Program extended the rights and protections of P.L. 94-142 so that by 1990 all handicapped children from three years of age had the right to a free, appropriate public education. (Approximately 70,000 were not being served under P.L. 94-142.) Part H, the Handicapped Infants and Toddlers Program, provides new funds to states to develop a statewide system for comprehensive early intervention services for handicapped infants and toddlers (birth through age two) and those at risk of developing handicaps, as well as services for families so that they can facilitate their child's development.

Social Security Act. Passed in 1935, the Social Security Act established the public provision of aid to dependent children, old age and survivors' insurance, and contributions to state unemployment insurance. The Social Security Act now includes authority for the Aid to Families with Dependent Children, the Foster Care Adoption Assistance, and the Child Welfare Service programs (Title IV); maternal and child health programs (Title V); the Supplemental Security Income program (Title XVI); Medicare (Title XVIII); Medicaid (Title XIX); and social service grants to states (Title XX).

Special Projects of Regional and National Significance (SPRANS). Up to 15 percent of the Maternal and Child Health Services Block Grant may be set aside for SPRANS demonstration projects. These projects concentrate on research; training of health professionals; innovative ways to deliver health services to mothers, infants, and children; and the development of systems (1) to provide early and effective treatment for handicapped children and (2) to enhance a family's ability to care for a child with special health care needs.

Special Supplemental Food Program for Women, Infants, and Children (WIC). This federal program provides cash grants to each state for nutrition services. WIC sites, often located in public health clinics, provide supplemental foods and nutrition education for low-income pregnant and postpartum women, infants, and children through age four who are determined to be at nutritional risk. Beneficiaries receive appropriate referrals for health services. Supplemental food may be in the form of either actual food items or vouchers valid for purchases of specific food items in retail stores.

Sudden Infant Death Syndrome (SIDS). SIDS is the sudden death of any infant or very young child that is unexpected by medical history and for which a postmortem fails to demonstrate an adequate cause.

Supplemental Security Income–Disabled Children (SSI-DC). SSI, permanently authorized by Title XVI of the Social Security Act, was created to assure a minimum cash income to all aged, blind, or disabled persons with few liquid assets. As of 1974, a child under 18 who has an impairment, such as deafness or severe mental retardation, comparable in severity with that of a qualifying adult, may also be considered disabled and thus receive SSI-DC. In 1990, the Supreme Court ruled that the strict medical criteria being used for SSI-DC unfairly excluded many children with other disabilities, such as AIDS; cystic fibrosis; and Down syndrome, muscular dystrophy, spina bifida, and other birth defects. The Court ordered the Social Security Administration not to deny benefits to poor children with severe physical or mental disabilities. The federal government funds the basic income award, and states supplement it at their option and expense.

Title V. This is the title of the Social Security Act that describes the Maternal and Child Health Services Block Grant, last amended in 1989. (See MCHSBG.)

Title X. This is the title of the Public Health Service Act that describes the federal family planning program, enacted in 1970.

Title XIX. This is the title of the Social Security Act that describes Medicaid, enacted in 1965. (See Medicaid.)

References

Chapter One:

1. Health Care Financing Administration, Office of National Cost Estimates. (1990). National Health Expenditures, 1988. *Health Care Financing Review, 11*(4), pp. 1–41.

2. National Center for Children in Poverty. (1990). *Five million children: A statistical profile of our poorest young citizens.* New York, NY: National Center for Children in Poverty.

3. Ibid.

4. Ibid.

5. Ibid.

6. Walker, D. K., & Richmond, J. B. (1984). *Monitoring child health in the United States: Selected issues and policies.* Cambridge, MA: Harvard University Press.

7. Haan, M., & Kaplan, G. (1985). Socioeconomic position and minority health. In: U.S. Department of Health and Human Services, Task Force on Black and Minority Health, *Report of the Secretary's Task Force on Black and Minority Health.* Washington, DC: U.S. Government Printing Office.

8. Committee for Economic Development. (1987). *Children in need: Investment strategies for the educationally disadvantaged.* New York, NY: Committee for Economic Development.

9. President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research. (1983). *Securing access to health care: A report on the ethical implications of differences in the availability of health services, Volume 1.* Washington, DC: U.S. Government Printing Office.

Chapter Two:

10. Schlesinger, A. M. (1986). *The cycles of American history.* Boston, MA: Houghton Mifflin.

11. Berger, L. R., & Johansson, S. R. (1980). Child health in the workplace: The Supreme Court in *Hammer v. Dagenhart* (1918). *Journal of Health Politics, Policy and Law, 5*(1), pp. 81–97.

12. Bremmer, R. H. (Ed.). (1974). *Children and youth in America.* Cambridge, MA: Harvard University Press.

13. Ibid.

14. Lesser, A. (1970). Introduction. In: *Position papers of the National Conference of Maternity and Infant Care Projects.* Washington, DC.

15. Foltz, A. M. (1982). *An ounce of prevention: Child health policies under Medicaid.* Cambridge, MA: MIT Press.

16. Coburn, A. F. (1982). *Implementation of federal child health policy.* Unpublished doctoral dissertation, Brandeis University, Waltham, MA.

17. Goldenberg, R. L., & Koski, J. F. (1984). *The Improved Pregnancy Outcome Project: An analysis of the impact of a federal program on infant mortality.* Washington, DC: U.S. Department of Health and Human Services.

18. Committee on Perinatal Health. (1977). *Toward improving the outcome of pregnancy: Recommendations for the regional development of maternal and perinatal health services.* White Plains, NY: National Foundation–March of Dimes.

19. U.S. Department of Health and Human Services, Select Panel for the Promotion of Child Health. (1981). *Better health for our children: A national strategy* (DHHS Pub. No. [PHS] 79-55071). Washington, DC: U.S. Government Printing Office.

20. U.S. Department of Health and Human Services, Public Health Service. (1980). *Promoting health preventing disease: Objectives for the nation.* Washington, DC: U.S. Government Printing Office.

21. U.S. Department of Health and Human Services, National Center for Health Statistics. (1990). *Advance report of final mortality statistics, 1988* (Monthly Vital Statistics Report, Vol. 39, No. 7, Supplement). Hyattsville, MD: National Center for Health Statistics.

U.S. Department of Health and Human Services, National Center for Health Statistics. (1990). *Annual summary of births, marriages, divorces, and deaths: United States, 1989* (Monthly Vital Statistics Report, Vol. 38, No. 13). Hyattsville, MD: National Center for Health Statistics.

Chapter Three:

22. Ibid.

23. U.S. Department of Health and Human Services, Public Health Service. (1990). *Healthy people 2000: National health promotion and disease prevention objectives* (DHHS Pub. No. [PHS] 91-50213). Washington, DC: U.S. Government Printing Office.

Also see reference 20.

24. See reference 21, first citation.

25. U.S. Department of Health and Human Services, Office of Maternal and Child Health. (1989). *Child health USA '89.* Washington, DC: U.S. Government Printing Office.

26. Hogue, C. J. R., Buehler, J. W., Strauss, L. T., & Smith, J. C. (1987). Overview of the National Infant Mortality Surveillance (NIMS) project—Design, methods, results. *Public Health Reports, 102*(2), pp. 126–145.

27. Wise, P. H., Kotelchuck, M., Wilson, M. L., & Mills, M. (1985). Racial and socioeconomic disparities in childhood mortality in Boston. *New England Journal of Medicine, 313*(6), pp. 360–366.

28. Stockwell, E. G., Swanson, D. A., & Wicks, J. W. (1988). Economic status differences in infant mortality by cause of death. *Public Health Reports, 103*(2), pp. 135–142.

29. Spurlock, C. W., Hinds, M. W., Skaggs, J. W., & Hernandez, C. E. (1987). Infant death rates among the poor and nonpoor in Kentucky, 1982 to 1983. *Pediatrics, 80*(2), pp. 262–269.

30. Braveman, P., Oliva, G., Miller, M. G., Reiter, R., & Gerter, S. (1989). Adverse outcomes and lack of health insurance among newborns in an eight-county area of California, 1982 to 1986. *New England Journal of Medicine, 321*(8), pp. 508–513.

31. See reference 21, first citation.

32. Ibid.

33. See reference 27.

34. Mare, R. D. (1982). Socioeconomic effects on child mortality in the United States. *American Journal of Public Health, 72*(6), pp. 539–547.

35. Maine Department of Human Services. (1983). *Children's deaths in Maine, 1976–1980: Final report.* Augusta, ME: Maine Department of Human Services.

36. See references 28 and 29.

37. Hoffman, H. J., Hunter, J. C., Damus, K., Pakter, J., Peterson, D. R., van Belle, G., & Hasselmeyer, E. G. (1987). Diphtheria-tetanus-pertussis immunization and sudden infant death: Results of the National Institute of Child Health and Human Development Cooperative Epidemiological Study of Sudden Infant Death Syndrome Risk Factors. *Pediatrics, 79*(4), pp. 598–611.

38. Robertson, L. S. (1987). *Childhood injuries: Knowledge and strategies for prevention* (PB 88-172507). Paper prepared for U.S. Congress, Office of Technology Assessment. Springfield, VA: National Technical Information Service.

39. See reference 28.

40. Fingerhut, L. A., Kleinman, J. C., Malloy, M. H., & Feldman, J. J. (1988). Injury fatalities among young children. *Public Health Reports, 103*(4), pp. 399–405.

41. See reference 34.

42. Christoffel, K. K., Anzinger, N. K., & Merrill, D. A. (1989). Age-related patterns of violent death, Cook County, Illinois, 1977 through 1982. *American Journal of Diseases of Children, 143*(12), pp. 1403–1409.

43. Abel, E. L. (1986). Childhood homicide in Erie County, New York. *Pediatrics, 77*(5), pp. 709–713.

44. Carza, B., U.S. Department of Health and Human Services, Centers for Disease Control. Personal communication, 1990.

45. Kilbourne, B. W., Buehler, J. W., & Rogers, M. F. (1990). AIDS as a cause of death in children, adolescents, and young adults (letter to the editor). *American Journal of Public Health, 80*(4), pp. 499–500.

46. Novello, A. C., Wise, P. H., Willoughby, A., & Pizzo, P. A. (1989). Final report of the United States Department of Health and Human Services Secretary's Work Group on Pediatric Human Immunodeficiency Virus Infection and Disease: Content and implications. *Pediatrics, 84*(3), pp. 547–555.

47. See references 27, 28, and 29.

48. Jason, J. M., & Jarvis, W. R. (1987). Infectious diseases: Preventable causes of infant mortality. *Pediatrics, 80*(3), pp. 335–341.

49. Evans, R., Mullally, D. I., Wilson, R. W., Gergen, P. J., Rosenberg, H. M., Grauman, J. S., Chevarley, F. M., & Feinleib, M. (1987). National trends in the morbidity and mortality of asthma in the U.S. *Chest, 91*(6, Supplement), pp. 65–74.

50. U.S. Department of Health and Human Services, National Center for Health Statistics. (1990). *Advance report of final natality statistics, 1988* (Monthly Vital Statistics Report, Vol. 39, No. 4, Supplement). Hyattsville, MD: National Center for Health Statistics.

51. Adams, P. F., & Hardy, A. M. (1989). *Current estimates from the National Health Interview Survey: United States, 1988* (Vital and Health Statistics, Series 10, No. 173). Hyattsville, MD: National Center for Health Statistics.

52. Graves, E. J. (1989). *National Hospital Discharge Survey: Annual summary, 1987* (Vital and Health Statistics, Series 13, No. 99). Hyattsville, MD: National Center for Health Statistics.

53. Kozak, L. J., Norton, C., McManus, M., & McCarthy, E. (1987). Hospital use patterns for children in the United States, 1983 and 1984. *Pediatrics, 80*(4), pp. 481–490.

54. Institute of Medicine, Committee to Study the Prevention of Low Birthweight. (1985). *Preventing low birthweight.* Washington, DC: National Academy Press.

55. Ibid.

56. Pamuk, E. R., & Mosher, W. D. (1988). *Health aspects of pregnancy and childbirth: United States, 1982* (Vital and Health Statistics, Series 23, No. 16). Hyattsville, MD: National Center for Health Statistics.

57. Binsacca, D. B., Ellis, J., Martin, D. G., & Petitti, D. B. (1987). Factors associated with low birthweight in an inner-city population: The role of financial problems. *American Journal of Public Health, 77*(4), pp. 505–506.

58. Gould, J. B., & LeRoy, S. (1988). Socioeconomic status and low birth weight: A racial comparison. *Pediatrics, 82*(6), pp. 896–904.

59. Lieberman, E., Ryan, K. J., Monson, R. R., & Schoenbaum, S. C. (1987). Risk factors accounting for racial differences in the rate of premature birth. *New England Journal of Medicine, 317*(12), pp. 743–748.

60. Kramer, M. S. (1987). Intrauterine growth and gestational duration determinants. *Pediatrics, 80*(4), pp. 502–511.

61. Zuckerman, B., Frank, D. A., Hingson, R., Amaro, H., Levenson, S. M., Kayne, H., Parker, S., Vinci, R., Aboagye, K., Fried, L., Cabral, H., Timperi, R., & Bauchner, H. (1989). Effects of maternal marijuana and cocaine use on fetal growth. *New England Journal of Medicine, 320*(12), pp. 762–768.

U.S. General Accounting Office. (1990). *Drug-exposed infants: A generation at risk.* Washington, DC: U.S. General Accounting Office.

62. Kleinman, J. C., Pierre, M. B., Madans, J. H., Land, G. H., & Schramm, W. F. (1988). The effects of maternal smoking on fetal and infant mortality. *American Journal of Epidemiology, 127*(2), pp. 274–282.

63. Stein, Z., & Kline, J. (1983). Smoking, alcohol and reproduction. *American Journal of Public Health, 73*(10), pp. 1154–1156.

Shiono, P. H., Klebenoff, M. A., & Rhoads, G. G. (1986). Smoking and drinking during pregnancy: Their effects on preterm birth. *Journal of the American Medical Association, 255*(1), pp. 82–84.

64. Moss, A. J., Overpeck, M. D., Hendershot, G. E., Hoffman, H. J., & Berendes, H. W. (1987). *Prenatal smoking and childhood morbidity.* Hyattsville, MD: National Center for Health Statistics.

65. Fielding, J. E., & Phenow, K. J. (1988). Health effects of involuntary smoking. *New England Journal of Medicine, 319*(22), pp. 1452–1459.

66. Weitzman, M., Gortmaker, S., Walker, D. K., & Sobol, A. (1990). Maternal smoking and childhood asthma. *Pediatrics, 85*(4), pp. 505–511.

67. Bulterys, M. G., Greenland, S., & Kraus, J. F. (1990). Chronic fetal hypoxia and sudden infant death syndrome: Interaction between maternal smoking and low hematocrit during pregnancy. *Pediatrics, 86*(4), pp. 535–540.

68. Wilsnak, R. W., Wilsnak, S. C., & Klassen, A. D. (1984). Women's drinking and drinking problems: Patterns from a 1981 national study. *American Journal of Public Health, 74*(11), pp. 1231–1238.

Clarren, S. K., & Smith, D. W. (1978). The fetal alcohol syndrome. *New England Journal of Medicine, 298*(19), pp. 1063–1067.

69. Graham, J. M., Hanson, J. W., Darby, B. L., Barr, H. M., & Streissguth, A. P. (1988). Independent dysmorphology evaluations at birth and 4 years of age for children exposed to varying amounts of alcohol in utero. *Pediatrics, 81*(6), pp. 772–778.

Day, N. L., Richardson, G., Robles, N., Sambamoorthi, U., Taylor, P., Scher, M., Stoffer, D., Jasperse, D., & Cornelius, M. (1990). Effects of prenatal alcohol exposure on growth and morphology of offspring at 8 months of age. *Pediatrics, 85*(5), pp. 748–752.

70. See reference 20.

71. See reference 61, first citation.

Chasnoff, I. J., Griffith, D. R., MacGregor, S., Dirkes, K., & Burns, K. A. (1989). Temporal patterns of cocaine use in pregnancy: Perinatal outcome. *Journal of the American Medical Association, 261*(12), pp. 1741–1744.

72. Regan, D. O., Ehrlich, S. M., & Finnegan, L. P. (1987). Infants of drug addicts: At risk for child abuse, neglect, and placement in foster care. *Neurotoxicology and Teratology 9*(4), pp. 315–319.

73. Amaro, H., Fried, L. E., Cabral, H., & Zuckerman, B. (1990). Violence during pregnancy and substance abuse. *American Journal of Public Health, 80*(5), pp. 575–579.

74. See reference 61, second citation.

75. U.S. Department of Health and Human Services, Centers for Disease Control. (1989). Congenital syphilis—New York City, 1986–1988. *Morbidity and Mortality Weekly Report, 38*(48), pp. 825–829.

76. See reference 56.

77. Ibid.

78. See reference 74.

79. Ibid.

80. Chasnoff, I. J., Landress, H. J., & Barrett, M. E. (1990). The prevalence of illicit drug or alcohol use during pregnancy and discrepancies in mandatory reporting in Pinellas County, Florida. *New England Journal of Medicine, 322*(17), pp. 1202–1206.

81. U.S. Department of Health and Human Services, Centers for Disease Control. (1990). Statewide prevalence of illicit drug use by pregnant women—Rhode Island. *Morbidity and Mortality Weekly Report, 39*(14), pp. 225–227.

82. Frank, D. A., Zuckerman, B. S., Amaro, H., Aboagye, K., Bauchner, H., Cabral, H., Fried, L., Hingson, R., Kayne, H., Levenson, S. M., Parker, S., Reece, H., & Vinci, R. (1988). Cocaine during pregnancy: Prevalence and correlates. *Pediatrics, 82*(6), pp. 888–895.

Amaro, H., Zuckerman, B., & Cabral, H. (1989). Drug use among adolescent mothers: Profile of risk. *Pediatrics, 84*(1), pp. 144–151.

See reference 74.

83. Hoffman, J. (1990, August 19). Pregnant, addicted—and guilty? *The New York Times Magazine, 139,* p. 32.

84. Gayle, J. A., Selik, R. M., & Chu, S. Y. (1990). Surveillance for AIDS and HIV infection among black and Hispanic children and women of childbearing age, 1981–1989. *Morbidity and Mortality Weekly Report, 39*(3), pp. 23–30.

85. Husson, R. N., Comeau, A. M., & Hoff, R. (1990). Diagnosis of human immunodeficiency virus infection in infants and children. *Pediatrics, 86*(1), pp. 1–10.

86. See reference 85.

87. Ibid.

88. Weitzman, M., Gortmaker, S., Walker, D. K., & Sobol, A. (1989). Social and environmental risks for childhood asthma. *American Journal of Diseases of Children, 143*(4), p. 436.

89. Szapiro, N. (1989). Children, poverty, and hospital care in New York City. In: M. I. Krasner (Ed.), *Poverty and health in New York City.* New York, NY: United Hospital Fund of New York.

90. Gergen, P. J., Mullally, D. I., & Evans, R. (1988). National Survey of Prevalence of Asthma Among Children in the United States, 1976 to 1980. *Pediatrics, 81*(1), pp. 1–7.

91. Wissow, L. S., Gittelsohn, A. M., Szklo, M., Starfield, B., & Mussman, M. (1988). Poverty, race, and hospitalization for childhood asthma. *American Journal of Public Health, 78*(7), pp. 777–782.

92. Pinkham, J. R., Casamassimo, P. S., & Levy, S. M. (1988). Dentistry and the children of poverty. *Journal of Dentistry for Children, 55*(1), pp. 17–24.

93. Waldman, H. B. *Oral health status of women and children in the United States.* (1989). Paper presented at the Public Health Service Workshop on Oral Health of Mothers and Children, Alexandria, VA.

94. U.S. Department of Health and Human Services, Centers for Disease Control. (1990). Measles—United States, 1989 and first 20 weeks, 1990. *Morbidity and Mortality Weekly Report, 39*(21), pp. 353–363.

U.S. Department of Health and Human Services, Centers for Disease Control. (1990). *Morbidity and Mortality Weekly Report, 39*(51 and 52), p. 943.

95. Ibid.

96. Newacheck, P. W., & Starfield, B. (1988). Morbidity and use of ambulatory care services among poor and nonpoor children. *American Journal of Public Health, 78*(8), pp. 927–933.

97. See reference 89.

98. Kotch, J., & Shackelford, J. (1989). *The nutritional status of low-income preschool children in the United States: A review of the literature.* Washington, DC: Food Research and Action Center.

99. U.S. Department of Agriculture, Human Nutrition Information Service. (1985). *Nationwide food consumption survey: Continuing survey of food intakes by individuals: Women 19–50 years and their children 1–5 years, one day* (Report 85-1). Washington, DC: U.S. Department of Agriculture.

100. Jones, D. Y., Nesheim, M. C., & Habicht, J. P. (1985). Influences in child growth associated with poverty in the 1970's: An examination of HANES I and HANES II, cross-sectional U.S. national surveys. *American Journal of Clinical Nutrition, 42*(4), pp. 714–724.

101. U.S. Department of Health and Human Services & U.S. Department of Agriculture. (1986). *Nutrition monitoring in the United States—A report from the Joint Nutrition Monitoring Evaluation Committee* (DHHS Pub. No. [PHS] 86-1255). Washington, DC: U.S. Government Printing Office.

102. U.S. Department of Health and Human Services, Life Sciences Research Office. (1989). *Nutrition monitoring in the United States: An update report on nutrition monitoring* (DHHS Pub. No. [PHS] 89–1225). Washington, DC: U.S. Government Printing Office.

103. Martorell, R., Mendoza, F. S., & Castillo, R. O. (1989). Genetic and environmental determinants of growth in Mexican-Americans. *Pediatrics, 84*(5), pp. 864–871.

104. See reference 100.

105. Yip, R., Binkin, N. J., Fleshood, L., & Trowbridge, F. L. (1987). Declining prevalence of anemia among low-income children in the United States. *Journal of the American Medical Association, 258*(12), pp. 1619–1623.

106. Connecticut Association for Human Services. (1987). *Community childhood hunger identification project: New Haven risk factor study.* Hartford, CT: Connecticut Association for Human Services.

107. See reference 97.

108. Mahaffey, K. R., Annest, J. L., Roberts, J., & Murphy, R. S. (1982). National estimates of blood lead levels: United States, 1976–1980. *New England Journal of Medicine, 307*(10), pp. 573–579.

109. Public Health Foundation. (1990). Laboratories seek new technology to screen for lead poisoning. *Public Health Macro View, 3*(3), p. 1.

110. Agency for Toxic Substances and Disease Registry. (1988). *The nature and extent of lead poisoning in the United States: A report to Congress.* Atlanta, GA: Agency for Toxic Substances and Disease Registry.

111. U.S. Department of Health and Human Services, Centers for Disease Control. (1985). *Preventing lead poisoning in young children: A statement by the Centers for Disease Control* (DHHS Pub. No. [PHS] 99-230). Washington, DC: U.S. Government Printing Office.

112. See reference 109.

113. Gould, M. S., Wunsch-Hitzig, R., & Dohrenwend, B. (1981). Estimating the prevalence of childhood psychopathology: A critical review. *Journal of the American Academy of Child Psychiatry, 20*(3), pp. 462–476.

114. Dougherty, D. H., Saxe, L. M., Cross, T., & Silverman, N. (1987). *Children's mental health: Problems and services.* Durham, NC: Duke University Press.

115. Richman, N. Disorders in pre-school children. (1985). In: M. Rutter & L. Hershov (Eds.), *Child and adolescent psychiatry: Modern approaches* (2d ed.). Oxford, England: Blackwell Scientific Publications.

116. Goldberg, I. D., Roghmann, K. J., McInerny, T. K., & Burke, J. D. (1984). Mental health problems among children seen in pediatric practice: Prevalence and management. *Pediatrics, 73*(3), pp. 278–293.

117. Zill, N., & Schoenborn, C. A. (1990). *Health of our nation's children: Developmental, learning, and emotional problems, United States, 1988.* Paper prepared for the National Center for Health Statistics, Hyattsville, MD.

118. Martin, S. L., Ramey, C. T., & Ramey, S. (1990). The prevention of intellectual impairment in children of impoverished families: Findings of a randomized trial of educational day care. *American Journal of Public Health, 80*(7), pp. 844–847.

119. Rivara, F. P., Kamitsuka, M. D., & Quan, L. (1988). Injuries to children younger than 1 year of age. *Pediatrics, 81*(1), pp. 93–97.

120. Rivara, F. P., & Barber, M. (1985). Demographic analysis of childhood pedestrian injuries. *Pediatrics, 76*(3), pp. 375–81.

121. See reference 89.

122. U.S. Congress, House Select Committee on Children, Youth, and Families. (1987). *Abused children in America: Victims of official neglect.* Washington, DC: U.S. Government Printing Office.

123. Hampton, R. L., & Newberger, E. H. (1985). Child abuse incidence and reporting by hospitals: Significance of severity, class, and race. *American Journal of Public Health, 75*(1), pp. 56–60.

124. Pelton, L. H. (1978). Child abuse and neglect: The myth of classlessness. *American Journal of Orthopsychiatry, 48*(4), pp. 608–617.

125. U.S. Congress, Office of Technology Assessment. (1988). *Healthy children: Investing in the future* (OTA-H-345). Washington, DC: U.S. Government Printing Office.

126. U.S. Department of Health and Human Services, National Center on Child Abuse and Neglect. (1988). *Study findings: Study of national incidence and prevalence of child abuse and neglect: 1988.* Washington, DC: U.S. Department of Health and Human Services.

127. See reference 122.

128. See reference 25.

129. See reference 53.

130. Zeitel, L. V. (1989). Infant illness among New York City's disadvantaged. In: M. I. Krasner (Ed.), *Poverty and health in New York City.* New York, NY: United Hospital Fund of New York.

131. See reference 89.

132. Parker, M. B. (1988). *Trends in access to health care for children in poverty, 1979–86.* Essay presented to the faculty, Department of Epidemiology and Public Health, School of Medicine, Yale University, New Haven, CT.

Chapter Four:

133. Joint Center for Housing Studies of Harvard University. (Undated). *The state of the nation's housing, 1988.* Cambridge, MA: Joint Center for Housing Studies of Harvard University.

134. Kozol, J. (1988). *Rachel and her children: Homeless families in America.* New York, NY: Crown.

135. U.S. General Accounting Office. (1989). *Children and youth: About 68,000 homeless and 186,000 in shared housing at any given time* (GAO/PEMD-89-14). Washington, DC: U.S. General Accounting Office.

136. Institute of Medicine, Committee on Health Care for Homeless People. (1988). *Homelessness, health, and human needs.* Washington, DC: National Academy Press.

137. Weitzman, B. C. (1989). Pregnancy and childbirth: Risk factors for homelessness? *Family Planning Perspectives, 21*(4), pp. 175–178.

138. Chavkin, W., Kristal, A., Seabron, C., & Guigli, P. (1987). The reproductive experience of women living in hotels for the homeless in New York City. *New York State Journal of Medicine, 87*(1), pp. 10–13.

139. Citizens' Committee for Children of New York. (1983). *No one's in charge: Homeless families with children in temporary shelter.* New York, NY: Citizens' Committee for Children of New York.

Citizens' Committee for Children of New York. (1984). *7,000 homeless children: The crisis continues. The third report on homeless families with children in temporary shelter.* New York, NY: Citizens' Committee for Children of New York.

140. Acker, P. J., Fierman, A. H., & Dreyer, B. P. (1987). An assessment of parameters of health care and nutrition in homeless children. *American Journal of Diseases of Children, 141*(4), p. 388.

Vermund, S. H., Belmar, R., & Drucker, E. (1987). Homelessness in New York City: The youngest victims. *New York State Journal of Medicine, 87*(1), pp. 3–4.

Wright, J. D., & Weber, E. (1987). *Homelessness and health.* Washington, DC: McGraw-Hill Healthcare Information Center.

Miller, D. S., & Lin, E. H. B. (1988). Children in sheltered homeless families: Reported health status and use of health services. *Pediatrics, 81*(5), pp. 668–673.

Alperstein, G., Rappaport, C., & Flannigan, J. M. (1988). Health problems of homeless children in New York City. *American Journal of Public Health, 78*(9), pp. 1232–1233.

Alperstein, G., & Arnstein, E. (1988). Homeless children: A challenge for pediatricians. *Pediatric Clinics of North America, 35*(6), pp. 1413–1425.

141. Bassuk, E. L., Rubin, L., & Lauriat, A. S. (1986). Characteristics of sheltered homeless families. *American Journal of Public Health, 76*(9), pp. 1097–1101.

Bassuk, E. L., & Rosenberg, L. (1988). Why does family homelessness occur? A case-control study. *American Journal of Public Health, 78*(7), pp. 783–788.

142. Dennis, E. A. (1989). Mobile outreach program provides health services to sheltered homeless children in New York City. *Public Health Reports, 104*(4), p. 405.

143. American Academy of Pediatrics, Committee on Community Health Services. (1988). Health needs of homeless children. *Pediatrics, 82*(6), pp. 938–940.

144. See reference 136.

145. Johnston, H. L. (1985). *Health for the nation's harvesters.* Farmington Hills, MI: National Migrant Worker Council.

146. Rust, G. S. (1990). Health status of migrant farmworkers: A literature review and commentary. *American Journal of Public Health, 80*(10), pp. 1213–1217.

147. Schneider, B. (1986). Providing for the health needs of migrant children. *Nurse Practitioner, 11*(2), pp. 54–65.

148. See reference 145.

Slesinger, D. P., Christenson, B. A., & Cautley, E. (1986). Health and mortality of migrant farm children. *Social Science and Medicine, 23*(1), pp. 65–74.

149. Alvarez, W. F., Doris, J., & Larson, O. (1988). Children of migrant farm work families are at high risk for maltreatment: New York State study. *American Journal of Public Health, 78*(8), pp. 934–936.

150. See reference 147.

Lee, C. V., McDermott, S. W., & Elliott, C. (1990). The delayed immunization of children of migrant farm workers in South Carolina. *Public Health Reports, 105*(3), pp. 317–320.

151. Ratcliffe, S. D., Lee, J., Lutz, L. J., Woolley, F. R., Baxter, S., Civish, F., & Johnson, M. (1989). Lead toxicity and iron deficiency in Utah migrant children. *American Journal of Public Health, 79*(5), pp. 631–633.

152. Ungar, B. L. P., Iscoe, E., Cutler, J., & Bartlett, J. G. (1986). Intestinal parasites in a migrant farmworker population. *Archives of Internal Medicine, 146*(3), pp. 513–515.

153. Koday, M., Rosenstein, D. I., & Nana Lopez, G. M. (1990). Dental decay rates among children of migrant workers in Yakima, WA. *Public Health Reports, 105*(5), p. 530.

154. Dewey, K. G., Chavez, M. N., Gauthier, C. L., & Jones, L. B. (1983). Anthropometry of Mexican-American migrant children in northern California. *American Journal of Clinical Nutrition, 37*(5), pp. 828–833.

155. Mountain, K., National Migrant Resource Program. Personal communication, 1990.

156. Kelly, R., U.S. Department of Health and Human Services, Head Start Bureau. Personal communication, 1990.

157. American Academy of Pediatrics, Committee on Community Health Services. (1989). Health care for children of migrant families. *Pediatrics, 84*(4), pp. 739–740.

158. American Academy of Pediatrics, Committee on Early Childhood, Adoption, and Dependent Care. (1987). Health care of foster children. *Pediatrics, 79*(4), pp. 644–646.

159. Barden, J. C. (1990, September 21). Foster care system reeling despite law meant to help. *The New York Times,* p. 1f.

160. Gershenson, C. Personal communication, 1990.

161. U.S. House of Representatives, Select Committee on Children, Youth and Families. (1990). *No place to call home: Discarded children in America.* Washington, DC: U.S. Government Printing Office.

162. Maximus, Inc. (1985). *Child welfare statistical fact book 1985: Substitute care.* Washington, DC: U.S. Department of Health and Human Services.

163. Rymer, M. P., & Adler, G. S. (1987). Children and

Medicaid: The experience in four states. *Health Care Financing Review, 9*(1), pp. 1–20.

164. Halfon, N., & Klee, L. (1987). Health services for California's foster children: Current practices and policy recommendations. *Pediatrics, 80*(2), pp. 183–191.

165. Polit, D. F., White, C. M., & Morton, T. D. (1987). Sex education and family planning services for adolescents in foster care. *Family Planning Perspectives, 19*(1), pp. 18–23.

166. Polit, D. F., Morton, T. D., & White, C. M. (1989). Sex, contraception and pregnancy among adolescents in foster care. *Family Planning Perspectives, 21*(5), pp. 203–208.

167. U.S. Department of Commerce, Bureau of the Census. (1989). *Money, income and poverty status in the United States: 1988 (Advance data from the March 1989 Current Population Survey)* (Current Population Reports Consumer Income Series P-60, No. 166). Washington, DC: U.S. Government Printing Office.

168. McManus, M. A., & Newacheck, P. W. (1987). *Rural maternal, child and adolescent health.* Washington, DC: McManus Health Policy.

169. Alan Guttmacher Institute. (1987). *The financing of maternity care in the United States.* New York, NY: Alan Guttmacher Institute.

170. See reference 168.

171. Singh, S., Torres, A., & Forrest, J. D. (1985). The need for prenatal care in the United States: Evidence from the 1980 National Natality Survey. *Family Planning Perspectives, 17*(3), pp. 118–124.

172. Kleinman, J. C., Cooke, M., Machlin, S., et al. (1983). Variation in use of obstetric technology. In: U.S. Department of Health and Human Services, Public Health Service, *Health—United States and prevention profile, 1983* (DHHS Pub. No. [PHS] 84-1232). Washington, DC: U.S. Government Printing Office.

173. Hughes, D., & Rosenbaum, S. (1989). An overview of maternal and infant health services in rural America. *Journal of Rural Health, 5*, pp. 299–319.

174. Ibid.

175. Nesbitt, T. S., Connell, F. A., Hart, L. G., & Rosenblatt, R. A. (1990). Access to obstetrical care in rural areas: Effect on birth outcomes. *American Journal of Public Health, 80*(7), pp. 814–818.

176. See reference 167.

177. See reference 2.

178. Kotlowitz, A. (1987, June 13). Day-to-day violence takes a terrible toll on inner-city youth. *The Wall Street Journal.*

179. Walinsky, A. (1987, December 4). What it's like to be in hell. *The New York Times*, p. 39.

180. Wilson, J. W. (1987). *The truly disadvantaged: The inner city, the underclass, and public policy.* Chicago, IL: University of Chicago Press.

181. See references 89 and 130.

182. U.S. Department of Health and Human Services, Indian Health Service. (1990). *Trends in Indian health 1989.* Washington, DC: U.S. Department of Health and Human Services.

183. Ibid.

184. Taffel, S. M. (1987). *Characteristics of American Indian and Alaskan native births, United States, 1984* (Monthly Vital Statistics Report, Vol. 36, No. 3, Supplement). Hyattsville, MD: National Center for Health Statistics.

185. Singh, S., Forrest, J. D., & Torres, A. (1989). *Prenatal care in the United States: A state and county inventory, Volume I.* New York, NY: Alan Guttmacher Institute.

186. See reference 182.

187. Honigfeld, L. S., & Kaplan, D. W. (1987). Native American postneonatal mortality. *Pediatrics, 80*(4), pp. 575–578.

188. U.S. Department of Health and Human Services, Centers for Disease Control. (1985). Dental caries in American Indian and Alaskan native children. *Morbidity and Mortality Weekly Report, 34*(26), pp. 400–401.

189. Broderick, E., Mabry, J., Robertson, D., & Thompson, J. (1989). Baby bottle tooth decay in Native American children in Head Start centers. *Public Health Reports, 104*(1), pp. 50–54.

190. See reference 182.

Chapter Five:

191. U.S. Department of Health and Human Services, Centers for Disease Control. (1986). The effectiveness of school health education. *Morbidity and Mortality Weekly Report, 35*(38), pp. 593–595.

192. Woodward, C. A., Boyle, M. H., Offord, D. R., Cadman, D. T., Links, P. S., Munroe-Blum, H., Byrne, C., & Thomas, H. (1988). Ontario child health study: Patterns of ambulatory medical care utilization and their correlates. *Pediatrics, 82*(3, Part 2), pp. 425–434.

193. Colle, A. D., & Grossman, M. (1978). Determinants of pediatric care utilization. *Journal of Human Resources, 13*(Supplement), pp. 115–153.

194. Makosky, V. P. (1982). Sources of stress: Events or conditions? In D. Belle (Ed.), *Lives in stress: Women and depression* (pp. 35–53). Beverly Hills, CA: Sage Publications.

195. Newacheck, P. W., & Starfield, B. (1988). Morbidity and use of ambulatory care services among poor and nonpoor children. *American Journal of Public Health, 78*(8), pp. 927–933.

196. See reference 2.

197. National Governors' Association, Center for Policy Research. (1990). *MCH Update: State coverage of pregnant women and children, July 1990.* Washington, DC: National Governors' Association.

198. Alan Guttmacher Institute. (1987). *Blessed events and the bottom line: Financing maternity care in the United States.* New York, NY: Alan Guttmacher Institute.

199. National Coalition of Hispanic Health and Human Services Organizations. (1990) *And access for all: Medicaid and Hispanics.* Washington, DC: National Coalition of Hispanic Health and Human Services Organizations.

200. See reference 173.

201. Ibid.

202. See reference 2.

203. Brooks, E. F., & Miller, C. A. (1987). Recent changes in selected local health departments: Implications for their capacity to guarantee basic medical rights. *American Journal of Preventive Medicine, 3*(3), pp. 134–141.

204. Klerman, L. V., Grazier, K. L., & Thomas, K. C. (1990). The role of the public sector in providing children's health care. In: M. Schlesinger & L. Eisenberg (Eds.), *Children in a changing health care system: Assessments and proposals for reform.* Baltimore, MD: Johns Hopkins University Press.

205. Rosenbaum, S., Hughes, D. C., & Johnson, K. (1988). Maternal and child health services for medically indigent children and pregnant women. *Medical Care, 26*(4), pp. 315–332.

206. Fossett, J. W., Perloff, J. D., Peterson, J. A., & Kletke, P. R. (1990). Medicaid in the inner city: The case of maternity care in Chicago. *The Milbank Quarterly, 68*(1), pp. 111–141.

207. Fingerhut, L. A., Makuc, D., & Kleinman, J. C. (1987). Delayed prenatal care and place of first visit: Differences by health insurance and education. *Family Planning Perspectives, 19*(5), pp. 212–214.

Chapter Six:

208. See reference 56.

209. Zuravin, S. J. (1987). Unplanned pregnancies, family planning problems, and child maltreatment. *Family Relations, 36*(2), pp. 135–139.

Joyce, T. J., & Grossman, M. (1990). Pregnancy wantedness and the early initiation of prenatal care. *Demography, 27*(1), pp. 1–17.

210. See reference 23.

211. Forrest, J. D., & Singh, S. (1990). The sexual and reproductive behavior of American women, 1982–1988. *Family Planning Perspectives, 22*(5), pp. 206–214.

212. Ibid.

213. Mosher, W. D. (1990). *Use of family planning services in the United States: 1982 and 1988* (Advance data from Vital and Health Statistics, No. 184). Hyattsville, MD: National Center for Health Statistics.

214. Ibid.

215. Torres, A., & Forrest, J. D. (1985). Family planning clinic services in the United States, 1983. *Family Planning Perspectives, 17*(1), pp. 30–35.

216. Orr, M. T., & Forrest, J. D. (1985). The availability of reproductive health services from U.S. private physicians. *Family Planning Perspectives, 17*(2), pp. 63–69.

217. Silverman, J., Torres, A., & Forrest, J. D. (1987). Barriers to contraceptive services. *Family Planning Perspectives, 19*(3), pp. 94–102.

218. Kessner, D. M. (1973). *Infant death: An analysis by maternal risk and health care.* Washington, DC: National Academy of Sciences.

219. American College of Obstetricians and Gynecologists. (1989). *Standards for obstetric-gynecologic services* (7th ed.). Washington, DC: American College of Obstetricians and Gynecologists.

220. American Academy of Pediatrics & American College of Obstetricians and Gynecologists. (1988). *Guidelines for perinatal care* (2d ed.). Elk Grove Village, IL: American Academy of Pediatrics.

221. U.S. Department of Health and Human Services, Public Health Service Expert Panel on the Content of Prenatal Care. (1989). *Caring for our future: The content of prenatal care.* Washington, DC: U.S. Department of Health and Human Services.

Merkatz, I. R., & Thompson, J. E. (1990). *New perspectives on prenatal care.* New York, NY: Elsevier Science Publishing.

222. See reference 219.

223. See reference 221.

224. See reference 23.

225. See reference 50.

226. See reference 23.

227. See reference 171.

228. See reference 56.

229. U.S. General Accounting Office. (1987). *Prenatal care: Medicaid recipients and uninsured women obtain insufficient care* (GAO/HRD-87-137). Washington, DC: U.S. General Accounting Office.

230. Poland, M. L., Ager, J. W., & Olson, J. M. (1987). Barriers to receiving adequate prenatal care. *American Journal of Obstetrics and Gynecology, 157*(2), pp. 297–303.

231. Kalmuss, D., & Fennelly, K. (1990). Barriers to prenatal care among low-income women in New York City. *Family Planning Perspectives, 22*(5), pp. 215–218, 231.

232. See reference 56.

233. Institute of Medicine, Committee to Study Outreach for Prenatal Care. (1988). *Prenatal care: Reaching mothers, reaching infants.* Washington, DC: National Academy Press.

234. See reference 185.

235. American College of Obstetricians and Gynecologists, Committee on Health Care for Underserved Women. (1988). *Ob/gyn services for indigent women: Issues raised by an ACOG survey.* Washington, DC: American College of Obstetricians and Gynecologists.

236. See reference 216.

237. Institute of Medicine, Committee to Study Medical Professional Liability and the Delivery of Obstetrical Care. (1989). *Medical professional liability and the delivery of obstetrical care.* Washington, DC: National Academy Press.

238. Opinion Research Corporation. (1988). *Hospital survey on obstetric claim frequency by patient payor category.* Washington, DC: American College of Obstetricians and Gynecologists.

239. Rosenblatt, R. A. (Ed.). (1989). Perinatal care in rural America. *Journal of Rural Health, 5*(4).

240. See reference 216.

241. Henshaw, S. K., & VanVort, J. (1990). Abortion services in the United States, 1987 and 1988. *Family Planning Perspectives, 22*(3), pp. 102–108.

242. Forrest, J. D., Gold, R. B., & Kenney, A-M. (1989). *The need, availability and financing of reproductive health services.* New York, NY: Alan Guttmacher Institute.

243. See reference 19.

244. American Academy of Pediatrics, Committee on Psychosocial Aspects of Child and Family Health. (1988). *Guidelines for health supervision II* (Vol. III). Elk Grove Village, IL: American Academy of Pediatrics.

245. Wagner, J. L., Herdman, R. C., & Alberts, D. W. (1989). Well-child care: How much is enough? *Health Affairs, 8*(3), pp. 147–157.

246. See reference 23.

247. Rosenbach, M. L. (1985). *Insurance coverage and ambulatory medical care of low-income children: United States, 1980* (National Medical Care Utilization and Expenditure Survey, Series C, Analytical Report No. 1). Washington, DC: U.S. Government Printing Office.

248. Rosenbach, M. L. (1989). The impact of Medicaid on physician use by low-income children. *American Journal of Public Health, 79*(9), pp. 1220–1226.

249. Newacheck, P. W., & Halfon, N. (1986). Access to ambulatory care services for economically disadvantaged children. *Pediatrics, 78*(5), pp. 813–819.

250. See reference 95.

251. Wood, D. L., Hayward, R. A., Corey, C. R., Freeman, H. E., & Shapiro, M. F. (1990). Access to medical care for children and adolescents in the United States. *Pediatrics, 86*(5), pp. 666–673.

252. Ibid.

253. Bloom, B. (1990). *Health insurance and medical care: Health of our nation's children, United States, 1988* (Advance data from Vital and Health Statistics, No. 188). Hyattsville, MD: National Center for Health Statistics.

254. See reference 25.

255. See reference 132.

256. Kasper, J. D. (1987). The importance of type of usual source of care for children's physician access and expenditures. *Medical Care, 25*(5), pp. 386–398.

257. Weitzman B. C. (1987). *Getting care: Poor children and New York City hospitals.* New York, NY: United Hospital Fund of New York.

258. See reference 2.

259. See reference 253.

260. Liebowitz, A., Manning, W. G., Keeler, E. B., Duan, N., Lohr, K. N., & Newhouse, J. P. (1985). Effect of cost-sharing on the use of medical services by children: Interim results from a randomized controlled trial. *Pediatrics, 75*(5), pp. 942–951.

261. Ibid.

262. Lurie, N., Manning, W. G., Peterson, C., Goldberg, G. A., Phelps, C. A., & Lillard, L. (1987). Preventive care: Do we practice what we preach? *American Journal of Public Health, 77*(7), pp. 801–804.

263. Cherkin, D. C., Grothaus, L., & Wagner, E. H. (1990). The effect of office visit copayments on preventive care services in an HMO. *Inquiry, 27*(1), pp. 24–38.

264. See reference 23.

265. U.S. Department of Health and Human Services, National Center for Health Statistics. (1990). *Health United States 1989* (DHHS Pub. No. [PHS] 90-1232). Hyattsville, MD: National Center for Health Statistics.

266. Ibid.

267. See reference 251.

268. See reference 249.

269. Smyth-Staruch, K., Breslau, N., Weitzman, M., & Gortmaker, S. (1984). Use of health services by chronically ill and disabled children. *Medical Care, 22*(4), pp. 310–328.

270. Schoenborn, C. A., & Cohen, B. H. (1986). *Trends in smoking, alcohol consumption, and other health practices among U.S. adults, 1977 and 1983* (Advance data from Vital and Health Statistics, No. 118). Hyattsville, MD: National Center for Health Statistics.

271. See reference 211.

272. Schoenborn, C. A. (1988). *Health prevention and disease prevention: United States, 1985* (Vital and Health Statistics, Series 10, No. 163, DHHS Pub. No. [PHS] 88-1591). Hyattsville, MD: National Center for Health Statistics.

273. Hoffman, R. E. (1986). Tracking 1990 objectives for injury prevention with 1985 NHIS findings. *Public Health Reports, 101*(6), pp. 581–586.

274. See reference 23.

275. Jack, S. S., & Bloom, B. (1988). *Use of dental services and dental health: United States, 1986* (Vital and Health Statistics, Series 10, No. 165). Hyattsville, MD: National Center for Health Statistics.

276. Ibid.

277. U.S. Congress, Office of Technology Assessment. (1990). *Children's dental services under the Medicaid program—Background paper* (OTA-BP-H-78). Washington, DC: U.S. Government Printing Office.

278. See reference 275.

Chapter Seven

279. Robertson, L. S. (1987). *Childhood injuries: Knowledge and strategies for prevention.* Paper prepared for the U.S. Congress, Office of Technology Assessment.

280. Hall, T. (1990, October 7). Fatal accidents are down as U.S. becomes vigilant. *The New York Times*, p. 1.

281. See reference 279.

282. Ibid.

283. Ibid.

284. Katcher, M. L. (1987). Prevention of tap water scald burns: Evaluation of a multi-media injury control program. *American Journal of Public Health 77*(9), pp. 1195–1197.

285. Guyer, B., Gallagher, S. S., Chang, B-H., Azzara, C. V., Cupples, L. A., & Colton, T. (1989). Prevention of childhood injuries: Evaluation of the Statewide Childhood Injury Prevention Program (SCIPP). *American Journal of Public Health, 79*(11), pp. 1521–1527.

286. U.S. Department of Health and Human Services, Centers for Disease Control. (1987). *Prevention of injuries to children and youth: A selected bibliography.* Washington, DC: U.S. Government Printing Office.

287. Annest, J. L., Pirkle, J. L., Makuc, D., Neese, J. W., Bayse, D. D., & Kovar, M. G. (1983). Chronological trend in blood lead levels between 1976 and 1980. *New England Journal of Medicine, 308*(23), pp. 1373–1377.

288. Charney, E., Kessler, B., Farfel, M. R., & Jackson, D. (1983). Childhood lead poisoning: A controlled trial of the effect of dust-control measures on blood lead levels. *New England Journal of Medicine, 309*(18), pp. 1089–1093.

289. Farfel, M. R., & Chisolm, J. J. (1990). Health and environmental outcomes of traditional and modified practices for abatement of residential lead-based paint. *American Journal of Public Health, 80*(10), pp. 1240–1245.

290. Human Nutrition Information Service. (1985). *National Food Consumption Survey: Continuing survey of food intakes by individuals: Women 19–50 years and their children 1–5 years, 1 day, 1985.* U.S. Department of Agriculture (NFCS, CSFII Report 85-1). Washington, DC.

291. Dallman, P. R. (1987). Has routine screening of infants for anemia become obsolete in the United States? *Pediatrics 80*(3), pp. 439–441.

292. Endozien, J. C., Switzer, B. R., & Bryan, R. B. (1979). Medical evaluation of the Special Supplemental Food Program for Women, Infants, and Children. *American Journal of Clinical Nutrition, 32*(3), pp. 677–692.

Kennedy, E. T., & Gershoff, S. (1982). Effect of WIC supplemental feeding on hemoglobin and hematocrit of prenatal patients. *Journal of the American Dietetic Association, 80*(3), pp. 227–230.

Kennedy, E. T., Gershoff, S., Reed, R., & Austin, J. E. (1982). Evaluation of the effect of WIC supplemental feeding on birth weight. *Journal of the American Dietetic Association, 80*(3), pp. 220–227.

Kotelchuck, M., Schwartz, J. B., Anderka, M. T., & Finison, K. S. (1984). WIC participation and pregnancy outcomes: Massachusetts statewide evaluation project. *American Journal of Public Health, 74*(10), pp. 1086–1092.

Rush, D., et al. (1988). The national WIC evaluation: Evaluation of the Special Supplemental Food Program for Women, Infants, and Children. *American Journal of Clinical Nutrition, 48*(2, supplement), pp. 389–519.

Schramm, W. F. (1985). WIC prenatal participation and its relationship to newborn Medicaid costs in Missouri: A cost/benefit analysis. *American Journal of Public Health, 75*(8), pp. 851–857.

Schramm, W. F. (1986). Prenatal participation in WIC related to Medicaid costs for Missouri newborns: 1982 update. *Public Health Reports, 101*(6), pp. 607–615.

Stockbauer, J. W. (1986). Evaluation of the Missouri WIC program: Prenatal components. *Journal of the American Dietetic Association, 86*(1), pp. 61–67.

Stockbauer, J. W. (1987). WIC prenatal participation and its relation to pregnancy outcomes in Missouri: A second look. *American Journal of Public Health, 77*(7), pp. 813–818.

293. Ibid.

294. See reference 292, fifth citation.

295. Kotch, J. B., & Whiteman, D. (1982). Effect of a WIC program on children's clinic activity in a local health department. *Medical Care, 20*(7), pp. 691–698.

296. Mathematica Policy Research. (1990). *The savings in Medicaid costs for newborns and their mothers from prenatal participation in the WIC program. Volume I.* Washington, DC: U.S. Department of Agriculture.

297. Yip, R., Binkin, N. J., Fleshood, L., & Trowbridge, F. L. (1987). Declining prevalence of anemia among low-income children in the United States. *Journal of the American Medical Association, 258*(12), pp. 1619–1623.

298. Vazquez-Seoane, P., Windom, R., & Pearson, H. A. (1985). Disappearance of iron-deficiency anemia in a high-risk infant population given supplemental iron. *New England Journal of Medicine, 313*(19), pp. 1239–1240.

299. Zee, P., DeLeon, M., Roberson, P., & Chen, C-H. (1985). Nutritional improvement of poor urban preschool children: A 1983–1977 comparison. *Journal of the American Medical Association, 253*(22), pp. 3269–3272.

300. See reference 94.

301. See reference 125.

302. White, C. C., Koplan, J. P., & Orenstein, W. A. (1985). Benefits, risks and costs of immunization for measles, mumps and rubella. *American Journal of Public Health, 75*(7), pp. 739–744.

303. See reference 125.

304. Easley, M. W. (1990). The status of water fluoridation in the United States. *Public Health Reports, 105*(4), pp. 348–353.

305. U.S. Department of Health and Human Services, Centers for Disease Control. (1990). Progress toward achieving the 1990 objectives for the nation for fluoridation and dental health. *Morbidity and Mortality Weekly Report, 39*(37), pp. 646–650.

306. Starfield, B. (1985). Motherhood and apple pie: The effectiveness of medical care for children. *Milbank Memorial Fund Quarterly, 63*(3), pp. 523–546.

307. American Academy of Pediatrics. (1980). *An agenda for America's children.* Evanston, IL: American Academy of Pediatrics.

308. Anderson, J. E., & Cope, L. G. (1987). The impact of family planning program activity on fertility. *Family Planning Perspectives, 19*(4), pp. 152–157.

309. Pratt, W. F., & Horn, M. C. (1985). *Wanted and unwanted childbearing: United States, 1973-82* (Advance data from Vital and Health Statistics, No. 108). Hyattsville, MD: National Center for Health Statistics.

Pratt, W. F., Mosher, W. D., Bachrach, C. A., & Horn, M. C. (1984). Understanding U.S. fertility: Findings from the National Survey of Family Growth, Cycle III. *Population Bulletin, 39*(5): pp. 3–42.

310. Forrest, J. D. & Singh, S. (1990). The sexual and reproductive behavior of American women, 1982–1988. *Family Planning Perspectives, 22,* pp. 206–214.

311. Hayes, C. D. (Ed.). (1987). *Risking the future: Adolescent sexuality, pregnancy, and childbearing.* Washington, DC: National Academy Press for National Research Council Panel on Adolescent Pregnancy and Childbearing.

312. Kisker, E. E. (1984). The effectiveness of family planning clinics in serving adolescents. *Family Planning Perspectives, 16*(5), pp. 212–218.

313. Chamie, M., Eisman, S., Forrest, J. D., Orr, M. T., & Torres, A. (1982). Factors affecting adolescents' use of family planning clinics. *Family Planning Perspectives, 14*(3), pp. 126–139.

314. Hofferth, S. L. The effects of programs and policies on adolescent pregnancy and childbearing. (1987). In: S. L. Hofferth & C. D. Hayes (Eds.), *Risking the future: Adolescent sexuality, pregnancy, and childbearing. Volume II: Working papers and statistical appendices.* Washington, DC: National Academy Press for the National Research Council Panel on Adolescent Pregnancy and Childbearing.

315. Zabin, L. S., Hirsch, M. B., Smith, E. A., Streett, R., & Hardy, J. B. (1986). Evaluation of a pregnancy prevention program for urban teenagers. *Family Planning Perspectives, 18*(3), pp. 119–126.

316. Kirby, D. (1985). *School-based clinics: An emerging approach to improving adolescent health and addressing adolescent pregnancy.* Washington, DC: Center for Population Options.

317. Zabin, L. S., Hirsch, M. B., Smith, E. A., Smith, M., Emerson, M. R., King, T. M., Streett, R., & Hardy, J. B. (1988). The Baltimore Pregnancy Prevention Program for Urban Teenagers: What did it cost? *Family Planning Perspectives, 20*(4), pp. 188–192.

318. Allen, J. P., Philliber, S., & Hoggson, N. (1990). School-based prevention of teenage pregnancy and school dropout: Process evaluation of the national replication of the Teen Outreach Program. *American Journal of Community Psychology, 18*(4), pp. 505–524.

319. Howard, M. & McCabe, J. B. (1990). Helping teenagers postpone sexual involvement. *Family Planning Perspectives 22*(1), pp. 21–26.

320. Vincent, M. L., Clearie, A. F., & Schluchter, M. D. (1987). Reducing adolescent pregnancy outcome through school and community-based education. *Journal of the American Medical Association, 257*(24), pp. 3382–3386.

321. Forrest, J. D., & Singh, S. (1990). Public-sector savings resulting from expenditures for contraceptive services. *Family Planning Perspectives, 22*(1), pp. 6–15.

322. See references 54 and 125.

323. Korenbrot, C. C. (1984). Risk reduction in pregnancies of low-income women: Comprehensive prenatal care through the OB Access Project. *Mobius, 4*(3), pp. 34–43.

Lennie, A., Klun, J. R., & Hausner, T. (1987). Low birth-weight rate reduced by the Obstetrical Access Project. *Health Care Financing Review, 8*(3), pp. 83–86.

324. Buescher, P. A., Smith, C., Holliday, J. L., & Levine, R. H. (1987). Source of prenatal care and infant birth weight: The case of a North Carolina county. *American Journal of Obstetrics and Gynecology, 156*(1), pp. 204–210.

325. Institute of Medicine, Committee to Study Outreach for Prenatal Care. (1988). *Prenatal care: Reaching mothers, reaching infants.* Washington, DC: National Academy Press.

326. Massachusetts Department of Public Health. (1988). *Interim report on Healthy Start program.* Boston, MA: Massachusetts Department of Public Health.

327. Jones, J. E. (1986). Overcoming barriers to Medicaid eligibility. *American Journal of Public Health, 76*(10), p. 1247.

328. Olds, D. L., Henderson, C. R., Tatelbaum, R., & Chamberlain, R. (1986). Improving the delivery of prenatal care and outcomes of pregnancy: A randomized trial of nurse home visitation. *Pediatrics, 77*(1), pp. 16–28.

Olds, D. L., & Kitzman, H. (1990). Can home visitation improve the health of women and children at environmental risk? *Pediatrics, 86*(1), pp. 108–116.

329. Heins, H. C., Nance, N. W., & Ferguson, J. E. (1987). Social support in improving perinatal outcome: The Resource Mothers Program. *Obstetrics and Gynecology, 70*(2), pp. 263–266.

330. See reference 311.

331. Cartoof, V. G. (1987). *An evaluation of the Young Parents Outreach Program.* New Haven, CT: Hill Health Center.

332. Elster, A. B., Lamb, M. E., Tavare, J., & Ralston, C. W. (1987). The medical and psychosocial impact of comprehensive care on adolescent pregnancy and parenthood. *Journal of the American Medical Association, 258*(9), pp. 1187–1192.

333. Korenbrot, C. C., Showstack, J., Loomis, A., & Brindis, C. (1989). Birth weight outcomes in a teenage pregnancy case management project. *Journal of Adolescent Health Care 10*(2), pp. 97–104.

334. Edwards, L. E., Steinman, M. E., & Hakanson, E. Y. (1977). An experimental high school clinic. *American Journal of Public Health, 67*(8), pp. 765–766.

335. McCormick, M. C., Shapiro, S., & Starfield, B. H. (1985). The regionalization of perinatal services: Summary of the evaluation of a national demonstration program. *Journal of the American Medical Association, 253*(6), pp. 799–804.

336. Shapiro, S., McCormick, M. C., Starfield, B. H., & Gawley, B. (1983). Changes in infant morbidity associated with decreases in neonatal mortality. *Pediatrics, 72*(3), pp. 408–415.

337. Gortmaker, S. L., Clark, C. J. G., Graven, S. N., et al. (1987). Reducing infant mortality in rural America: Evaluation of the Rural Infant Care Program. *Health Services Research, 22*(1), pp. 91–116.

338. See reference 17.

339. Allison-Cooke, S., Schwartz, R. M., & Gagnon, D. E. (1988). *The impact of the changing health care environment on perinatal regionalization: Final report.* Providence, RI: National Perinatal Information Center.

340. Corman H., & Grossman, M. (1985). Determinants of neonatal mortality rates in the U.S. *Journal of Health Economics, 4*(3), pp. 213–236.

341. Corman, H., Joyce, T., & Grossman, M. (1987). Birth outcome production functions in the U.S. *Journal of Human Resources, 22*(3), pp. 339–360.

342. Joyce, T. (1987). The impact of induced abortion on black and white birth outcomes in the United States. *Demography, 24*(2), pp. 229–242.

343. Joyce, T., Corman, H., & Grossman, M. (1988). A cost-effectiveness analysis of strategies to reduce infant mortality. *Medical Care, 26*(4), pp. 348–360.

344. Hadley, J. (1987). *The effects of medical care on mortality and morbidity: Selected analyses with secondary data.* Unpublished paper.

345. Rosenbaum, S., Hughes, D. C., & Johnson, K. (1988). Maternal and child health services for medically indigent children and pregnant women. *Medical Care, 26*(4), pp. 315–332.

346. U.S. Health Services and Resource Administration. (1987). Personal communication.

347. Egan, J. (1990). U.S. Department of Health and Human Services, Migrant Health Program. Personal communication.

348. National Head Start Association. (1990). *Head Start: The nation's pride, a nation's challenge.* Alexandria, VA: National Head Start Association.

349. Kelly, R., U.S. Department of Health and Human Services, Head Start Bureau. Personal communication, 1990.

350. Abt Associates. (1984). *The effects of Head Start health services: Report of the Head Start evaluation.* Cambridge, MA: Abt Associates.

351. Ibid.

352. See reference 348.

353. Ibid.

354. Foltz, A. M. (1982). *An ounce of prevention: Child health policies under Medicaid.* Cambridge, MA: MIT Press.

Meisels, S. J. (1984). Prediction, prevention, and development screening in the EPSDT program. In: H. W. Stevenson & A. E. Siegel (Eds.), *Child development research and social policy.* Chicago, IL: University of Chicago Press.

Rosenbaum, S., & Johnson, K. (1986). Providing health care for low-income children: Reconciling child health goals with child health financing realities. *The Milbank Quarterly, 64*(3), pp. 442–479.

Goggin, M. L. (1987). *Policy design and the politics of implementation: The case of child health care in the American states.* Knoxville, TN: University of Tennessee Press.

355. U.S. Department of Health and Human Services, Health Care Financing Administration. (1989). EPSDT Program Performance Indicators. State Medicaid Agency Regional Bulletin, No. 89-61.

356. Keller, W. J. (1983). Study of selected outcomes of the Early and Periodic Screening, Diagnosis, and Treatment program in Michigan. *Public Health Reports, 98*(2), pp. 111–119.

357. Irwin, P. H., & Conroy-Hughes, R. (1982). EPSDT impact on health status: Estimates based on secondary analysis of administratively generated data. *Medical Care, 20*(2), pp. 216–234.

358. Lazarus, W. (1983). *Right from the start: Improving health care for Ohio's pregnant women and their children.* Washington, DC: Children's Defense Fund.

Olds, D. L., Henderson, C. R., Tatelbaum, R., & Chamberlain, R. (1988). Improving the life-course development of socially disadvantaged mothers: A randomized trial of nurse home visitation. *American Journal of Public Health, 78*(11), pp. 1436–1445.

359. Olds, D. L., Henderson, C. R., Chamberlain, R., & Tatelbaum, R. (1986). Preventing child abuse and neglect: A randomized trial of nurse home visitation. *Pediatrics, 78*(1), pp. 65–78.

360. Unger, D. G., & Wandersman, L. P. (1985). Social support and adolescent mothers: Action research contributions to theory and application. *Journal of Social Issues, 41*(1), pp. 29–45.

361. See reference 125.

362. U.S. General Accounting Office. (1990). *Home visiting: A promising intervention for at-risk families* (GAO/HRD-90-83). Washington, DC: U.S. General Accounting Office.

Olds, D. L., Henderson, C. R., & Phelps, C. R. (1988). *Prenatal/Early Infancy Project: Impact of program on government revenues and expenditures and degree of exposure to prenatal program, maternal behavior, and outcomes of pregnancy* (Final report to the Ford Foundation).

See reference 328, second citation.

363. Infant Health and Development Program. (1990). Enhancing the outcomes of low-birth-weight, premature infants: A multisite, randomized trial. *Journal of the American Medical Association, 263*(22), pp. 3035–3042.

364. Stein, R. E. K., & Jessop, D. J. (1984). Does pediatric home care make a difference for children with chronic illness? Findings from the Pediatric Ambulatory Care Treatment Study. *Pediatrics, 73*(6), pp. 845–885.

365. Freedman, S. A., & Pierce, P. M. (1989). REACH: A rural case-management project. In: R. E. K. Stein (Ed.), *Caring for children with chronic illness: Issues and strategies.* New York, NY: Springer.

366. Davidson, S., Fleming, G., Hohlen, M., Manheim, L., Shapiro, B. K., & Werner, S. (1988). *Physician reimbursement and continuing care under Medicaid: A demonstration (The Children's Medicaid Program).* Elk Grove Village, IL: American Academy of Pediatrics.

367. Rosenbaum, S., Hughes, D. C., Butler, E., & Howard, D. (1988). Incantations in the dark: Medicaid, managed care and maternity care. *The Milbank Quarterly, 66*(4), pp. 661–693.

Horwitz, S. M., & Stein, R. E. K. (1990). Health maintenance organizations vs. indemnity insurance for children with chronic illness: Trading gaps in coverage. *American Journal of Diseases of Children 144*(5), pp. 581–586.

368. Newacheck, P. W. (1990). *Improving access to care for expectant mothers and young children.* Paper prepared for the Cornell Policy Conference IV, Ithaca, NY.

369. Gortmaker, S. L. (1981). Medicaid and the health care of children in poverty and near poverty: Some successes and failures. *Medical Care, 19*(6), pp. 567–582.

Orr, M. T., & Miller, C. A. (1981). Utilization of health services by the poor since advent of Medicaid. *Medical Care, 19*(6), pp. 583–590.

Rogers, D. E., Blendon, R. J., & Moloney, T. W. (1982). Who needs Medicaid? *New England Journal of Medicine, 307*(1), pp. 13–18.

370. Rosenbaum, S., & Weitz, J. (1983). *Children and federal health care cuts: A national survey of the impact of federal health budget reductions on state maternal and child health services during 1982.* Washington, DC: Children's Defense Fund.

Johns, L., & Adler, G. S. (1989). Evaluation of recent changes in Medicaid. *Health Affairs, 8*(1), pp. 171–181.

371. Schwethelm, B., Margolis, L. H., Miller, C., & Smith, S. (1989). Risk status and pregnancy outcome among Medicaid recipients. *American Journal of Preventive Medicine, 5*(3), pp. 157–163.

Piper, J. M., Ray, W. A., & Griffin, M. R. (1990). Effects of Medicaid eligibility expansion on prenatal care and pregnancy outcome in Tennessee. *Journal of the American Medical Association, 264*(17), pp. 2219–2223.

Chapter Eight:

372. Skopol, T. (1990). Sustainable social policy: Fighting poverty without poverty programs. *The American Prospect, 2*, pp. 58–70.

373. Schlesinger, M. J., & Eisenberg, L. (1990). Little people in a big policy world: Lasting questions and new directions in health policy for children. In: M. J. Schlesinger & L. Eisenberg (Eds.), *Children in a changing health care system: Assessments and proposals for reform.* Baltimore, MD: Johns Hopkins University Press.

374. Hilts, P. J. (1990, December 20). U.S. opens a drive to wipe out lead poisoning among children. *The New York Times.*

375. Ibid.

376. Wagner, J. L., Herdman, R. C., & Alberts, D. W. (1989). Well-child care: How much is enough? *Health Affairs, 8*(3), pp. 147–157.

377. See reference 237.

378. Schorr, L. B., & Schorr, D. (1988). *Within our reach: Breaking the cycle of disadvantage.* New York, NY: Anchor Press Doubleday.

379. Mullan F. (1987). Rethinking public ambulatory care in America. *New England Journal of Medicine, 316*(9), pp. 544–546.

Figures and Tables

Figure 1: Number of poor children under six, 1968–1988 2

Figure 2: Trends in poverty rates by age group, 1968–1988 3

Figure 3: Rates of infant mortality (A) and low birthweight (B), 1980–1989 18

Figure 4: Leading causes of neonatal deaths per 100,000 live births, 1987 19

Figure 5: Leading causes of postneonatal deaths per 100,000 live births, 1987 20

Figure 6: Leading causes of death among children 1–4 years per 100,000 population, 1987 22

Figure 7: Fatal injury rates for young children per 100,000 population, 1980–1984 23

Figure 8: Percentage of low-birthweight babies by mother's poverty status, 1982 27

Figure 9: Percentage of low-birthweight babies by mother's education, 1982 28

Figure 10: AIDS cases in children under 16 by probable source of infection and racial/ethnic group, 1981–1989 31

Figure 11: Reported measles cases by year, 1980–1990 33

Figure 12: Percentage of children aged 2–5 whose height measured below the 5th percentile of standard height, by race and poverty status, 1976–1980 35

Figure 13: Percentage of children, aged 6 months to 5 years whose blood lead levels were estimated to be excessive, by urban status, 1984 36

Figure 14: Mechanisms by which poverty affects health 51

Figure 15: Medicaid participation rates of pediatricians, 1978, 1983, and 1989 57

Figure 16: Percentage distribution of medical consultations for poor and nonpoor children under five by site, 1987 67

Figure 17: Completed vaccinations of children aged 1–4, 1976 and 1985 69

Figure 18: Percentage of children aged 2–4 who had one or more dental visits, by family income, 1986 71

Table 1: Fatal injury rates per 100,000 infants and children aged 1–4 by cause of injury, 1980–1984 24

Table 2: Child maltreatment rates per 1,000 children by type of maltreatment and family income, 1986 39

Table 3: Percentage distribution of children under six covered by health insurance, 1986 55

Table 4: Safety-related activites of families by income, 1985 70

National Center for Children in Poverty

Director: Judith E. Jones

Deputy Director: James T. Bond

Associate Directors:
Beth S. Atkins, ***Publications***
Karen N. Bell, ***Special Projects in Maternal and Child Health***
William H. Scarbrough, ***Research***

Early Childhood Program:
Mary B. Larner, ***Director***
Emily S. Cooperstein, ***Project Associate***

Finance and Administration: Victor Rivera

Librarian: Carole Oshinsky

Assistant to the Director: Janet C. West

Administrative Assistant to the Director:
Nancy Lopez

Support Staff:
Arthur Jones
Blanca L. Lopez
Alina Martin
Sobeyda Padilla
Telly L. Valdellon

Editorial/Production Credits

Editor: Beth S. Atkins

Program and Research Resources:
Karen N. Bell
William H. Scarbrough

Cover Design: Robert Muller

Book Design: Ann Morris

Copy Editor: Dore Hollander

References Editor: Leigh Hallingby

Word Processing:
Chette Jones
Blanca L. Lopez
Telly L. Valdellon

Photographs from Photo Researchers, Inc.:
Ulrike Welsch, cover
Chronicle Pictures Inc., p. 9
Bruce Roberts, p. 11
Hanna Schreiber, p. 15
Christopher G. Knight, p. 17
Myron Wood, p. 43
Arthur Tress, p. 47
Paolo Koch, p. 49
Suzanne Szasz, p. 62
Pamela Parlapiano, p. 72
Christa Armstrong, p. 88
David M. Grossman, p. 106

BEST COPY AVAILABLE

**NATIONAL CENTER
FOR CHILDREN
IN POVERTY**

COLUMBIA UNIVERSITY • SCHOOL OF PUBLIC HEALTH
154 Haven Avenue, New York, NY 10032
212-927-8793 • FAX: 212-927-9162

BEST COPY AVAILABLE